DOCUMENT RESUME

ED 414 819 HE 030 798

TITLE	Academic Reforms in the World: Situation and Perspective in the Massification Stage of Higher Education. Reports of the 1997 Six-Nation Higher Education Project Seminar (Hiroshima, Japan February 6-7, 1997). RIHE International Seminar Reports, No.10.
INSTITUTION	Hiroshima Univ. (Japan). Research Inst. for Higher Education.
PUB DATE	1997-07-00
NOTE	310p.
AVAILABLE FROM	Research Institute for Higher Education, Hiroshima University, 2-2, Kagamiyama 1-chome, Higashi-Hiroshima, 739 Japan.
PUB TYPE	Collected Works - Proceedings (021)
EDRS PRICE	MF01/PC13 Plus Postage.
DESCRIPTORS	*Access to Education; *Comparative Education; Cultural Differences; Educational Change; Educational Policy; Educational Trends; Foreign Countries; *Higher Education; Public Education; Public Policy; Trend Analysis

ABSTRACT

This volume presents papers presented at an international seminar conducted as part of the Six Nation Education Research Project, a project identifying aspects of higher education that currently confront educational systems in all countries. A keynote address by Robert Zemsky, titled "Seminar on Post-Massification," examines trends in the United States, including the price-income squeeze in access to higher education and the reduced demand for young workers, and suggests that such trends may generalize to other nations. Six country reports are then presented: (1) "Massification of Higher Education and Academic Reforms in Japan" (Akira Arimoto); (2) "Trends in Higher Education from Massification to Post-Massification" (United States) (Patricia J. Gumport and others); (3) "Current Issues in Higher Education" (Switzerland) (Francois Grin, Christoph Metzger, and Andreas Gruner); (4) "Trends in University Reform in the Context of Massification" (Singapore) (S. Gopinathan and Susan B. Morriss); (5) "Reform and Development of China's Higher Education System in the Past Decade" (Wei Xin); and (6) "Higher Education in a Federal System" (Germany) (Wilfried Hartmann). Two summary papers are: "Reforms as a Response to Massification of Higher Education: A Comparative View" (Ulrich Teichler), and a commentary on conference discussions by Keith J. Morgan. Two special papers are also included: "Approaches to Mass Higher Education: A Comparison of Change in Britain and Australia" (Keith J. Morgan), and "Cross-National Study on Academic Organizational Reforms in Post-Massification Stage" (Akira Arimoto). (Individual papers contain references.) (DB)

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ACADEMIC REFORMS IN THE WORLD :

Situation and Perspective in the Massification Stage of Higher Education

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Reports of the 1997 Six-Nation Higher Education Project Seminar

Keynote Address		R. Zemsky
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Edited and Published by:
Research Institute for Higher Education
Hiroshima University
2-2, Kagamiyama 1-chome
Higashi-Hiroshima, 739 JAPAN
TEL: (0824)24-6240
Printed by:
Takatoo Print Media Co., Ltd.
2-30, Senda-machi 3-chome, Naka-ku
Hiroshima, 730 JAPAN

July, 1997

PREFACE

As part of the Six Nation Education Research Project, the Research Institute for Higher Education in Hiroshima University (RIHE) was invited to convene an international seminar on higher education. With support from the Ministry of Education, Japan, the seminar was held in Hiroshima on February 6 and 7, 1997.

In accord with the spirit of the Six-Nations project, the seminar was intended to provide a basis for building bridges of understanding across international boundaries by identifying aspects of higher education that, to a greater or lesser extent, currently confront educational systems in all countries. Accordingly, the theme of the seminar was identified as "Academic Reforms in the World: Situation and Perspective in the Massification Stage of Higher Education".

Representatives of all the countries participating in the Six-Nation Project - China, Germany, Singapore, Switzerland, Japan and USA - attended and contributed to both the formal presentations and the extensive and wide ranging discussions. The foundation for the seminar was provided by the keynote address and the papers, one from each country, describing the existing situation and the reforms in higher education presently occurring in each of the six nations.

The authors of the "country papers" were asked to focus on the following content:

(a) the trend of organizational reforms at institutional and systemic levels consequent on the development of higher education massification, with special emphasis on the trend of innovation for educational quality accompanying student diversification;
(b) the trend of the reforms of the basic structure of administration and management introduced in terms of efficiency, rationalization, and accountability of academic organizations;
(c) a general view of the present situation of academic reforms and their relationship to a perspective of the future functions of universities and colleges.

Through the two-day programme based on the presentation of these reports and the subsequent discussions, it became clear that the existing situations exhibit many similarities but also wide differences reflecting the varied stages of development of massification among the six countries. Individual characteristics peculiar to each country were noted by the participants in the discussions covering a diverse range of topics: the concept of higher education itself, massification and post-massification, research methodology, and the existing situations and problems relating to the main theme of the seminar. Considering these, I am convinced that the seminar provided an outcome even more stimulating and fruitful than was expected. Among the participants it appeared to be recognized that much valuable information and understanding was derived directly from the seminar and would be of immediate and active use. This is precisely the purpose of seminar and identifies the benefits sought from the Six-Nation project. It is hoped that publication of this volume will allow the benefits to be accessible to a wider audience and to contribute to progress in the development of higher education internationally.

The successful outcome of the international seminar is due to the participants and to all those who provided generous support and co-operation. I would like to record my thanks and deep appreciation to all these people.

Akira Akimoto
Professor and Director
R. I. H. E

FOREWORD

The Six-Nation Research Project represents a unique collaboration. The first Research Seminar of the Project was organized by the Research Institute for Higher Education in Hiroshima in February, 1997.

The timely choice of theme and topics, the distinguished panel of education experts and the incisive, wide-ranging discussions were impressive indicators of the significance attached to this project. This report of the proceedings of the Seminar will provide policy-makers and education researchers around the world with invaluable insights and perspective on higher education. The Seminar, and this subsequent report, establishes a standard against which all future Six-Nation projects will be measured. I am particularly delighted that this will be so because I can think of no other single initiative that has greater significance for the direction of world-wide academic reform in the coming century.

We are indebted to the Japanese Ministry of Education and Hiroshima University for their support; and to the staff of the Research Institute for Higher Education for their preparative work and co-operation in making this landmark research seminar possible and successful. It is though important to identify the dynamic leadership and vision provided by the Director of R.I.H.E., Professor Akira Arimoto, as the key to bringing this initiative to fruition so effectively and efficiently.

From the outset, my colleagues and I were convinced that the Six-Nation Research Project would provide identifiable benefits to each member country. That real progress is being achieved is evident from this important seminar. It is my hope that this remarkable co-operation among the nations will continue to grow and that in working together we may be both teachers and learners in the critical task of preparing those who will be the citizens, workers and decision-makers in the twenty-first century.

Susan Fuhrman
Dean, Graduate School of Education,
University of Pennsylvania

RIHE International
Seminar Reports

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PART I

PRESENTED PAPERS

Seminar on Post-Massification*

Robert Zemsky
University of Pennsylvania

Introduction

We owe a special debt to our host, Akira Arimoto, Professor and Director of the Research Institute for Higher Education at Hiroshima University — first, for convening what I believe will prove to be an important, perhaps even seminal, seminar; and, second, for providing us with an imaginative framework within which to conduct our discussions. In many ways his proposal cum paper, "Cross-National Study on Academic Organizational Reforms in Post-Massification Stage," serves admirably as a keynote for this seminar. Therefore, my remarks this morning primarily elaborate on the set of ideas Professor Arimoto has laid before us.

Though massification in higher education was originally an American phenomenon, the term itself is not part of our lexicon. We tend to talk more about access and opportunity, about the expansion of the number of students we serve, the number of institutions founded, and the growing range of degree — and now non-degree — programs offered. We have made a baccalaureate education a prerequisite for economic success. We have built, largely at public expense, an extraordinary range of institutions more than 1,800 of which offer the baccalaureate degree — that now compete with each other for students, faculty, and research support. Once, the presidents of our institutions regularly boasted that their colleges and universities were the envy of the world — that through the enrollment of foreign students alone, American higher education added more than four billion dollars each year to the nation's balance-of-payments.

In more recent years, however, American higher education has seen itself as being under assault. The complacency of a decade ago has been replaced by a heightened sense of risk and an inordinate number of metaphors of cataclysmic change. Americans now regularly speak of sea changes and tidal waves and shifting tectonic plates. Money everywhere is scarce. State appropriations for higher education, the single largest source of public funding for higher education in the United States, has declined a whopping 8.2 percent in constant dollars in just over a decade.

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*Paper presented as a Keynote Address.

Behind these declines in funding is a fundamental shift in state budgetary priorities — in part, reflecting the drive to balance the federal budget and the devolution of federal responsibilities, principally welfare and health insurance for retirees and the elderly poor. These shifts have been compounded by local decisions to increase spending on primary and secondary schools, by the necessity to spend more on prisons, and by tax cuts that further reduce the funds available for higher education. What the nation's publicly funded universities and colleges are receiving is a smaller share of a diminishing pie.

Coincident with — and perhaps derived from — this reduction in public funding has been an erosion in the public nature of American higher education. The principle that made possible the rapid expansion of American higher education in the decades immediately following the Second World War was that those who benefit and those who pay for higher education are part of the same collective "we" of public purposes. Whether deliberate or simply an accommodation to restrained resources, the new principle holds that the primary return on the investment in education is individual, rather than collective; that the public good is synonymous with the choices and well-being of those individuals; and that, consequently, those who benefit directly should assume the greatest share of the cost. In an age of federal devolution, multiple claims on public funds, and universal tax resistance, cost considerations and market forces have become the dominant shapers of American higher education.

For American faculty these changes have been anything but welcome. Faculty everywhere feel under attack. There are growing — some would say irresistible — pressures to end the job security tenure now confers. Faculty are not happy with the students they have to teach, with the public scrutiny now focused on both what and how they teach, and with the growing demands for both increased productivity and for greater focus on learning outcomes. Academic life in the United States has become stressful, fractured, and specialized.

These changes and stresses have also given rise to a remarkably broad-based reform movement involving institutions of every kind: research universities and community colleges; public comprehensive institutions and private liberal arts colleges. Just over three years ago, the Pew Higher Education Roundtable convened the presidents and provosts of more than 400 American universities and colleges in an extraordinary meeting to understand the range of forces of arrayed against their institutions. Writing in *Policy Perspectives* following that meeting, we summarized higher education's new sensitivities by observing:

> Some institutions have understood well just how much and how fast their world is changing; others are only now feeling the shock of diminished resources and the rising demand for alternate services; and a few genuinely believe that they will best serve the nation by changing as little as possible. Our argument is simple and to the point: no institution will emerge unscathed from its confrontation with an external environment that is substantially altered and in many ways more hostile to colleges and universities.

Three years later — three years of gathering momentum in support of the fundamental recasting of higher education's teaching and research missions — *Policy Perspectives* would note:

> It is crunch time for higher education — an age of revenue diets, legislators bent on micromanagement, regulators demanding greater institutional accountability, and consumers insisting on more service at lower prices. It is no longer a question of whether institutions must change but of who will control that recasting — the nation's colleges and universities, or an increasingly competitive market for postsecondary education that holds little sympathy for institutional tradition.

Professor Arimoto has suggested that what is happening in the United States is part of a larger, worldwide shift in the nature of national economies and, by extension, in each nation's system of higher education. He writes: "In every country facing the kind of social change which includes more or less economic retrenchment, some modification and shifting of academic policy may be observed." Each country will have its own version of Clark Kerr's "a time of troubles" as the "cademic growth model dominant at the massification stage" gives way to the results of "emerging retrenchment." It is this observation that lies at the heart of Professor Arimoto's proposal — to wit, the transition from massification to post-massification provides a general rubric for understanding what others have characterized as chaotic, even incoherent, change.

From Massification to Post-Massification

My task in this keynote is to extend the argument Professor Arimoto has derived, largely from his understanding of developments across Japanese higher education over the last decade. He has asked each of us to ponder whether the changes in Japanese higher education are equally descriptive of changes in our own countries. And, can those changes be ascribed in general to post-massification?

Under the general heading "Transformation of Academic Policy and its Characteristics," Professor Arimoto lists seven changes in Japanese higher education since the 1970s. I want to begin by recasting these descriptions as postulates that might then be applied generally to catalog the experiences of a wide variety of nations with developed systems of higher education.

As a national system of higher education moves from massification to post-massification, the following events will occur:

1. Budget retrenchment will force public agencies to focus renewed attention on the social and economic rationalization of university functions. At least one result will be a stronger system of public accountability.

2. The system of higher education will become increasingly privatized, either through greater expansion of the private sector or through increased reliance on student fees to fund public-sector institutions — or both.

3. Institutions of higher education will find themselves more responsible for their own management in an era of deregulation.

4. Market forces will increasingly supplant public policy in determining the scale, scope, and price of higher education.

5. With a growing number of institutions "on their own," public agencies and public opinion will seek to secure the quality of the system of higher education through new forms of accreditation.

6. As part of that effort to ensure quality, educational outcomes will prove increasingly important for gauging institutional accountability.

7. Inevitably, these changes will result in an increase in the level of psychological stress within the university.

Professor Arimoto next provides a list of the kinds of changes within the university one is likely to see, once the boundary between massification and post-massification has been crossed:

A. Shifting social priorities that place increased emphasis on general as opposed to specialized education and on teaching as opposed to research;

B. Changes in the normative structures of the university;

C. New demands for academic productivity;

D. Changes in student populations;

E. Changes in pedagogy; and

F. Changes in the professional standing of faculty and the status of students.

Professor Arimoto's seven postulates certainly describe the current state of higher education in the United States. The balance among the seven is different for the United States than for Japan — in the former there is greater reliance on market forces (4), more privatization (2), and less emphasis on new forms of accreditation (5). The list of observable phenomena, however, needs little if any alteration to fit the American case. All are apparent in abundance!

I take it, however, that Professor Arimoto intends his proposal to constitute more than a description. What he has proposed, I think, is an intriguing, even seductive, schema encompassing a general explanation for the evolution of universities across the developed world and beyond — a sequel to the revolutions of 1968 that propelled Europe and Japan toward massification and that, in the US, altered the balance of power in many universities.

The question before this seminar is really two-fold. First, does the proposed schema provide a general understanding of higher education in a state of post-massification? Second, is there a link — a causal link — between massification and post-massification? What do we know about the process by which massification gives way to post-massification? Professor Arimoto suggests that the underlying causes for such shifts are economic — changes in the nature, even the robustness, of a nation's economy that then translate into reduced public appropriation for higher education and the tell-tale signs of institutional reform and stress.

As a means of beginning our discussions and with the special indulgence of

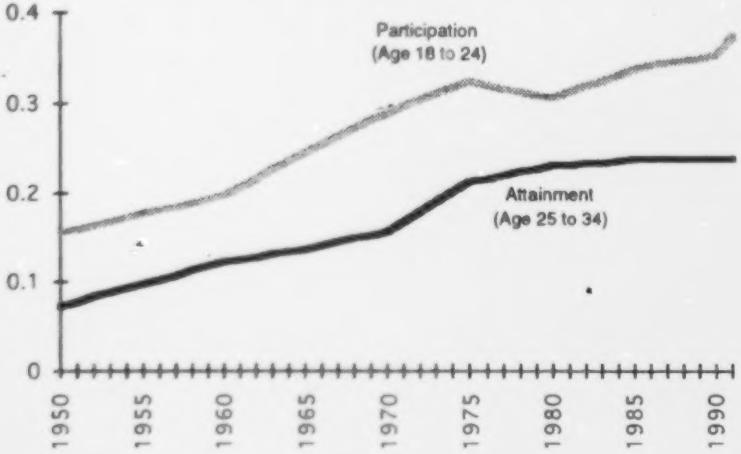
Professor Patricia Gumport, who will present the United States country report, I would like first to provide a set of answers by focusing on how changes in the American youth labor market commingled with changes in the access to and cost of a college education to create the conditions Professor Arimoto ascribes to post-massification. In considerably less detail, I then want to explore the applicability of this special case to other national contexts – and then conclude by posing a series of questions that each of the nations represented in this seminar might want to ask of themselves.

Myths and Realities: The Context for Massification in the United States

I want to begin by providing a more textured sketch of what massification has meant for American higher education. I will focus in particular on two myths – although exaggerations might be a more apt phrase – that have come to characterize how most Americans would describe the importance of higher education in their country. The first holds that higher education in the United States is now a truly mass phenomenon: there is now a general expectation that most high school students will "go to college"; there is a similar assumption that the jobs of the future will require a college education; and there is a growing conviction that lifelong learning will yield ever-increasing enrollments for the nation's colleges and universities. To non-Americans familiar with education patterns in the United States, this perspective is just one more example of the perennial habit of we Americans to emphasize the positive by claiming as achievements worthy goals yet to be realized. Among Europeans, in particular, there is often dismay at the ease with which Americans, when comparing participation rates for the United States with those of other developed countries, lump all forms of postsecondary education into a single category – as if attendance at a community college was equal to matriculation at one the nation's advanced research universities. The implication is that, once again, Americans have confused quantity and quality – suggesting that what the United States has achieved is mass education rather than mass higher education.

Here, the skeptics have the better of the argument. When one looks at the most standard measure of participation – the percentage of the youth cohort aged 18 to 24 that has matriculated at a college or university – there is an impressive tale to be told. Figure 1 gives the proportion of this cohort from 1950 to 1990 reporting "some college" attainment. From this perspective, Americans have achieved a mass system of higher education, in that there is a growing presumption that most citizens will — in fact, should — attend a college or university.

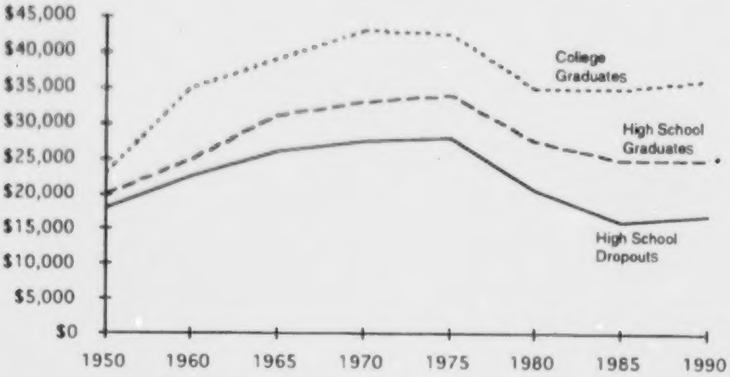
Figure 1 Participation vs. Attainment (U. S.)



When one turns to a measure of attainment — the percentage of young adults aged 25 to 34 who report having earned a baccalaureate degree — a different picture emerges. From 1950 through 1982, during the final stages of massification, the proportion of those who started, but did not complete, a college education declined from more than half to less than 30 percent. By the 1990s, however, the gap was again widening, as more than 40 percent of those students who started college quit before receiving a baccalaureate degree. While the proportion of young adults in the United States who have a tertiary educational degree is higher than in any other developed country save Japan and Canada, the gap between American attainment rates and those of other countries continues to narrow.

A second exaggeration of which Americans have grown fond involves the economic advantages that accrue to college graduates. Most Americans take as an article of faith that "going to college pays off" by providing access to better jobs, better salaries, and brighter futures. This belief has made equal access to a college or university such an important political goal that the federal government has become a major dispenser of student aid. As Sam Stringfield has pointed out, it is a perspective — like the Horatio Alger myth of an earlier time — which contains a kernel of truth that is forgotten when it comes time to draw important lessons about the nature of the numbers. Stringfield was interested in the average incomes (in constant dollars) of three groups of males aged 25 to 34: college graduates, high school graduates, and high school dropouts. His plotting of these median salaries from 1950 through 1990 is presented in Figure 2.

Figure 2 Median Income of Males, Aged 25 to 34, by Level of Education



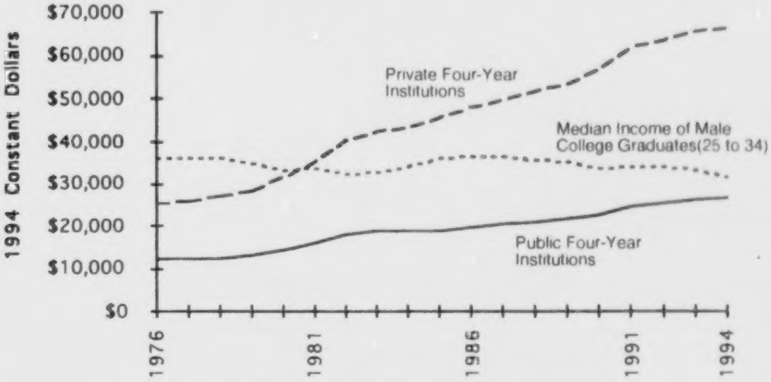
What Stringfield's analysis makes clear is that, after 1970, going to college did not confer an increased economic advantage. Indeed, in constant dollars, the average income of a male college graduate aged 24 to 35 has *decreased* by nearly 16 percent since its peak. What has declined even more precipitously, however, are the incomes of non-college graduates. Both high school dropouts and high school graduates without college degrees in 1990 earned less than their grandfathers did a half-century earlier with the same educational credentials. In 1990, college graduates, on the other hand, were still more advantaged than their grandfathers — earning, on the average, 57 percent more than college graduates,80 percent more than high school graduates, and 100 percent more than high school dropouts did in 1949.

It is the echo of that historic advantage, largely achieved during the heyday of massification (1950 to 1960), which propels the American sense that going to college pays off. A more realistic interpretation would be that college education is a necessary, but not sufficient, condition for achieving economic well-being. We may want to mark the years 1969 to 1974 as the last stages of massification, and the years immediately thereafter as the first stages of post-massification.

The Price-Income Squeeze

At the Institute for Research on Higher Education, we have extended Stringfield's analysis by comparing the average incomes of male college graduates aged 25 to 34 with the average four-year costs associated with earning a baccalaureate degree. Figure 3 presents this analysis as a rough "price/income ratio" for American higher education. The stresses on the system are clear. Gone are the days of low cost and high return, replaced with the paradoxical sense that a college education, while increasingly necessary, is also necessarily less rewarding. Figure 3 also provides a ready explanation for the increased focus on cost that has come to dominate the public's scrutiny of American higher education. It is not just that tuition increases have exceeded the rate of inflation; rather, what occasions public anxiety is the sense that it is being asked to pay more for less, quite literally in terms of likely income in relation to stated prices.

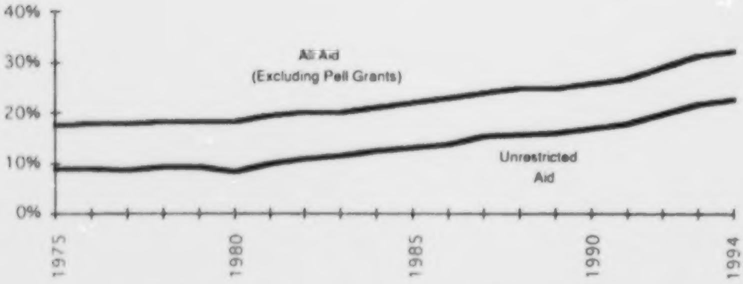
Figure 3 College Costs* and Average Incomes: 1976 to 1994 in Constant Dollars



*College costs include tuition, fees, room and board.

For private higher education, the crisis of cost is long-standing. The first reaction of most institutions in this sector was to rely on federal loan funds to help offset their rising cost of attendance. A second, often parallel, strategy was effectively to reduce the stated price of attendance by offering discounts in the form of student financial aid. This pattern is clearest among liberal arts colleges who do not enroll graduate students. Figure 4 presents two measures of discounting at more than 100 Liberal Arts I Colleges, as defined by the Carnegie Classification. The first plots the ratio of total student aid to tuition and fee income. The second plots the ratio of unrestricted student aid (that is, aid funded largely through tuitions and other fees) to total tuition and fee income. By 1994, the last year for which data are available, the average liberal arts college was discounting its stated price by one-third – and funding two-thirds of those discounts with recycled tuition dollars. We have every reason to believe similar patterns characterize the pricing practices of private research universities as well. Most commentators believe that such discounting has resulted in diminishing returns, as private institutions begin to lose enrollment simply because they have insufficient revenue to offer the kind of educational experiences the market seems to demand.

Figure 4 Student Aid (Discounts) as a Proportion of Tuition and Fee Revenue at Liberal Arts Colleges



For public higher education, the years of greatest challenge lie just ahead. Given current trends, four years of tuition will exceed the average annual income of young adults aged 24 to 35 before the end of the decade, thus erasing the 1-to-4 price-to-income ratio present during the final stages of massification. Unless the downward trend of public appropriation is reversed, public institutions will have to chose between a further ratcheting-up of tuitions or a painful reduction in staff and facilities – a choice that is itself the hallmark of post-massification.

Outlets and Medallions

Given the extraordinary range of institutions seeking their enrollments, today's students are more likely to see themselves as shoppers buying their higher educations "one course at a time." They have learned to search for the best price and the most convenient time to take the next set of courses they think they require. These courses will often be taken at variety of institutions and, in metropolitan areas, from more than one institution simultaneously. What such purchases collectively form is a growing commodity market for higher education.

The other strategy is to delay entry into the labor market as long as possible by attending a prestigious undergraduate education in preparation for subsequent enrollment in a top graduate or professional school. The structure of this – the most selective part of the market for college and university places – is mirrored in the applicant pools of the nation's most selective law schools. Typically, less than 30 undergraduate institutions (of a possible 1,800) provide more than half of a top-ten law school's applicants. More than two-thirds of these "feeder" undergraduate institutions will be either high-priced, highly selective private colleges and universities or public flagship universities. Among a top-ten law school's matriculants, this stratification will be even more pronounced, with less than 20 prestigious undergraduate institutions supplying more than half of the law school's enrollment.

What drives this part of the market, what is responsible for the increasing concentration of top students in relatively few undergraduate institutions in the United States, are middle- and upper-income parents in search of economic security for their children. Unable to will them sufficient wealth or a place in the family business or practice, they instead seek the kind of educational "medallion" that will give their children an edge – boost their chances of getting into a top professional school and later making their way in an increasingly turbulent labor market.

Today, probably fewer than 100 undergraduate institutions can provide that kind of edge, though upwards of 250 colleges and universities compete for the students interested in a medallion education. It is a tough market that is getting tougher. It is also the market that US News and World Report and its rankings get right: what are important are the "inputs" – size of endowment, size of the budget, selectivity (you're only as good as the last student you turn down), and reputation. It is a market in which the brand name, not the quality of the education, is what counts – that and the trappings of student life: well-appointed residences, modern athletic and recreational facilities, fraternities and sororities, study-abroad programs, and the plethora of staff that accompanies such programs.

The irony, then, is that in the transition from massification to post-massification American higher education is becoming not less but more stratified. Higher education in the United States has always had its pecking order, though once it could be characterized as a relatively flat pyramid where the differences between first-, second-, and third-tier institutions was relatively modest – whether expressed in terms of average SAT scores of entering freshmen, the achievements of each institution's graduates, or the reputation of its faculty. Not so today. The image that most readily comes to mind when describing American higher education's current hierarchy is the Transamerica building that dominates San Francisco's skyline; it is a tall and steep-sided structure, one that is precarious for those colleges and universities perched anywhere but near the top.

A Reduced Demand for Young Workers

The dynamics of the price-income squeeze (Figure 3) and the concomitant development of a two-tiered market – outlet and medallion – may have their roots in a shift in the market for young workers in the United States since 1981. Perhaps the only advantage enjoyed by young workers today is that there are fewer of them. In 1981, there were over 27 million young workers aged 16 to 26 in the United States who were not enrolled in school and who either had or were seeking full-time employment. Ten years later, the number of similarly aged young workers numbered just 22 million – an 18.5 percent decrease. With so many fewer young people competing for jobs, their participation in the labor force actually increased slightly, from 69 percent in 1981 to 70 percent in 1991, while the proportion of those working full-time increased from 75 percent to 79 percent over the same decade.

Offsetting this slight increase in employment, however, were three significant losses that substantially disadvantaged the current generation of young people. In 1981, 19 percent of young workers in the United States were employed in full-time jobs in the manufacturing sector. Ten years later, only 15 percent of youth worked full-time in the same sector – comprising a net loss of 1.65 million manufacturing jobs for young workers. At the same time, the proportion of full-time manufacturing jobs held by all young workers aged 16 to 26 fell from 23 percent in 1981 to 16 percent in 1991.

Changes in the armed services had a similar impact. In 1987, the armed services enlisted almost 300,000 new recruits – for the most part, young people with high school degrees but little subsequent postsecondary education. By 1993, these annual accessions to the military had been reduced by one-third, or 100,000 fewer recruits each year. This number is expected to drop even further as the military continues to downsize. What will be lost by the end of the decade are almost one million good jobs for young people: jobs with good pay, excellent benefits, opportunities to acquire technical skills, and further educational benefits after service.

Not surprisingly, this decline in good jobs for young people was accompanied by a general and persistent decline in the wages paid to them. Compared with their counterparts of a decade ago, young workers in the United States are more likely to have jobs for which they are paid less. When their education, gender, race or ethnicity, and industry of employment are taken into account, young workers today earn, on the average, more than 10 percent less in constant dollars than their counterparts did a decade ago. As I have already noted, for young workers without high school credentials, the decline in the real value of their incomes has been even more dramatic (Figure 2).

The causes underlying the declining fortunes of young workers are now the subject of a lively debate in the United States. On one side are arrayed those who argue that the problem lies with the preparation of young people for work — with their schooling and with their antipathy to the discipline of work itself. These scholars and commentators would increase opportunities for young people largely through an aggressive agenda of school reform. Increase the skills and improve the attitudes young people bring with them to the labor market, they have argued, and employment will follow. Within this agenda, probably the most radical proposal would have established a German-style apprenticeship system in the United States.

Those of us who hold the alternative view argue that — whatever the problems inherent in the skills and attitudes of young people — the larger problem is one of demand, not supply. As the American economy has undergone restructuring and its firms have reengineered their enterprises, employers have learned to thrive with fewer of the kind of entry-level positions historically filled by young workers. As one employer told us when we conducted focus groups to assess employers' willingness to participate in youth apprenticeship programs, "What I want in a new worker no high school can supply — a twenty-six-year-old with three previous employers."

Indeed, the youth labor market in the United States has come to provide a contingent labor pool on which employers can draw as needed, without having to make significant investments in either the screening or training of young workers. Just to have applications for permanent positions with opportunities for advancement taken seriously, young people are being asked to prove themselves upon graduation from high school or college in a string of temporary, often intermittent, and occasionally part-time positions at minimum wages, most often in retailing or a related service industry.

The result is an increase in the rate of college attendance — though not necessarily graduation. Except for students at the most prestigious and selective undergraduate institutions, the pattern is increasingly one of work and school, in which "time to degree" is lengthening and the likelihood of attrition increasing, as older students take on the responsibilities of family or develop the kind of work histories that will allow them to find more permanent places in the labor market.

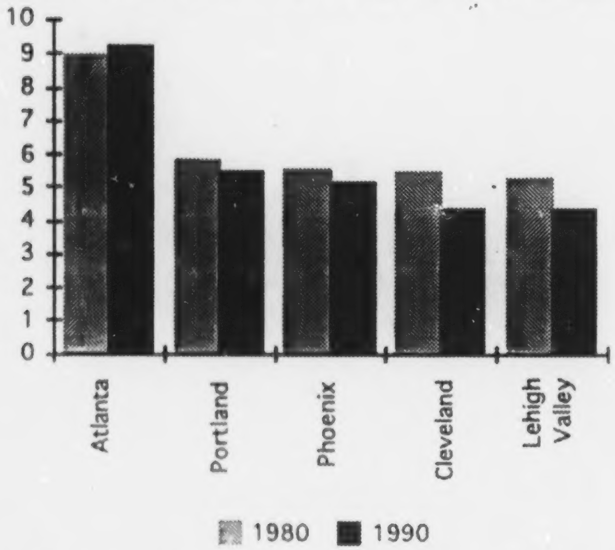
Education and the Calculus of Local Advantage

There is also an important, often recursive, relationship between the market for college and university enrollments and the functioning of the youth labor market. As part of our work for the National Center on the Educational Quality of the Workforce (EQW), we focused on the interaction of local education and labor markets in five metropolitan areas: Atlanta, Georgia; Cleveland, Ohio; Phoenix, Arizona; Portland, Oregon; and two communities in Pennsylvania's Lehigh Valley, Allentown and Bethlehem. Statistically, these five metropolitan areas can be arrayed along a single continuum, with Atlanta anchoring one end and the Lehigh Valley the other, each exemplifying a contrasting pattern of economic and educational change. The Lehigh Valley is typical of much that is characteristic of an older, more established America. It is a region of settled communities, reflective of a time when one or two manufacturers dominated each local area. Atlanta, on the other hand, is one of America's new "go-go" cities — an economic engine for a rejuvenated Southern economy. It is big and getting bigger, and bustles as an exemplar of the modern service-sector metropolis.

The Lehigh Valley has a population that is old and growing older — indeed, growing older substantially faster than three of the four other cities in the study. Here, the key measure is the ratio of residents aged 16 to 64 (the prime working-age population) to residents aged 65 and older. In 1980, that ratio was approximately 5 to 1 for the Lehigh Valley — by 1990 it had dropped to just 4 to 1. Again, it is Atlanta that exemplifies the dynamic of growth. In 1980, it enjoyed nine residents aged 16 to 64 for every person over the age of 65; by 1990, Atlanta's ratio of working-age to retirement-age citizens had grown to almost 10 to 1, more than twice that of the Lehigh Valley (Figure 5).

Essentially, this is a ratio of producers to non-producers. A low ratio — in particular, a falling one, such as that found in the Lehigh Valley — suggests an increasing drag on the local economy. A low ratio usually indicates that an area is losing its young population, most likely because the work and educational opportunities are viewed as less attractive than the opportunities available

Figure 5 **Ratio of Working-Age Adults (16 to 24) to Elderly Population (65 and older)**



elsewhere. The presumption is that, once young people in substantial numbers move elsewhere for employment, the local economy cannot be sustained.

The changing distribution of workers by industry tells much the same story. Although the Lehigh Valley lost 27.7 percent of its manufacturing jobs over the course of the 1980s, even as late as 1990 one of every three Lehigh Valley workers was still employed in manufacturing, construction, mining, or agriculture. In Atlanta, less than one in four workers was engaged in primary or secondary sector employment (Figure 6).

The distribution of educational attainment completes the story. As measured by years of schooling, the educational attainment of each of the five metropolitan areas improved during the 1980s, although again with noticeable differences. Atlanta had the highest proportion of college graduates in the workforce, one in three; the Lehigh Valley had the lowest, just over one in five. Among the five metropolitan areas in 1990, the Lehigh Valley had the lowest proportion (45 percent) of its workforce reporting at least some postsecondary education. Portland had the highest proportion (64 percent), followed closely by Atlanta with 60 percent reporting some college or a bachelor's degree (Figure 7). In the Lehigh Valley, where the economy is more heavily dependent on traditional primary and secondary enterprises, the high school diploma remains noticeably more important as a credential than in the other four metropolitan areas.

Figure 6 Share of Employment by Industry (1994)

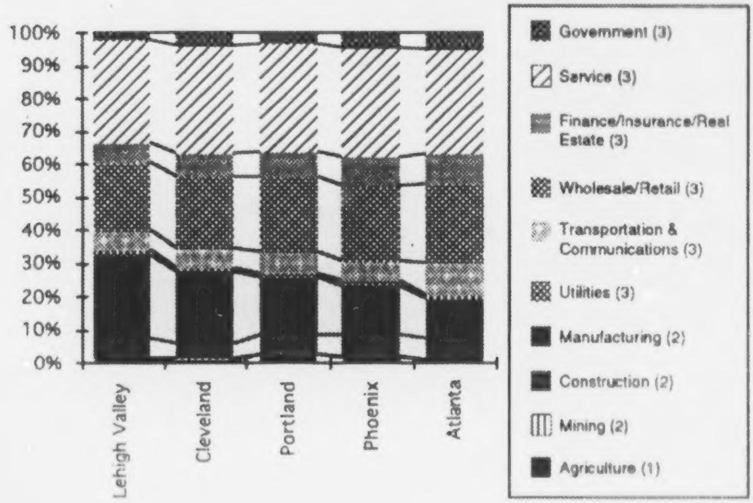
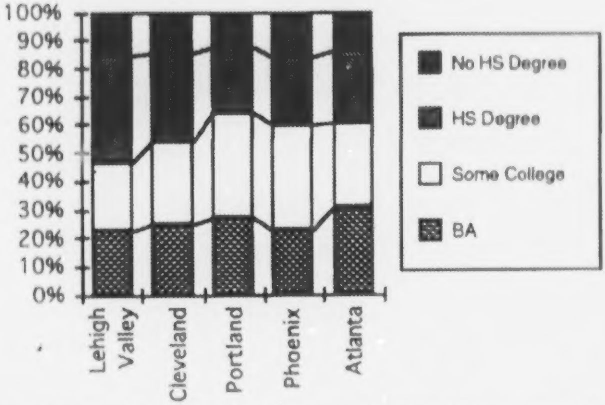


Figure 7 Educational Attainment (1990)



On the other hand, school officials in the Lehigh Valley report that upwards of 70 percent of their high school graduates seek college or university enrollment immediately following graduation — a figure not unlike that of the other communities. What happens in the Lehigh Valley, however, is that young people either leave the area to go to school and do not return, or they use the college credentials earned at a local institution to qualify for work elsewhere. In either case, massification in conjunction with the changing nature of the Valley's economy — and hence the demand for young workers — disperses the best and the brightest of the Valley's young people to other locales and more vibrant economies. The same phenomenon works in reverse for cities like Atlanta that have become magnets for young people seeking to escape older communities such as the Lehigh Valley.

A Causal Nexus

It is this nexus of economic opportunity, educational attainment, and community and parental ambitions that frames my understanding of the changing context for higher education in the United States. The commitment to access — including, in particular, access to more full-time as well as higher paying jobs for women — probably came first as a reaffirmation of American's quest for social and economic mobility. The continuing infusion of college and university graduates during a time of sustained economic growth helped speed the transition to a service economy that paradoxically reduced the proportion of the labor force that could command the higher salaries a college degree previously conferred.

Once the market for college graduates became saturated — even in booming communities like Atlanta — the boundary between massification and post-massification was crossed, leading to a restratification of both educational attainment and, no so coincidentally, economic advantage. That process is likely to accelerate as the number of young people seeking a college education again increases, while the nation's institutions of higher education are pressed harder to do more with less. Squeezed from above by reductions in higher education's share of public funding, pressed from below by the reluctance of students and their families to pay high tuitions for all but the most prestigious and selective institutions, colleges and universities will find themselves between the proverbial "rock and a hard place." What some fear and others eagerly promote is a fundamental recasting of the nature of higher education in the United States — one that is both student- and customer-centered, with less emphasis on the importance of research and with less independence, even respect, for faculty.

Generalizing the American Case?

It is tempting to see many of the same patterns reflected in the current state of European higher education. There have always been close links between the systems of higher education in Britain and the United States, the former having spawned the latter and then maintained its American connections for more than two centuries. Great Britain has engaged in much of the same soul searching as Americans about the nature of job opportunities for young people and the extent to which British schools currently equip their graduates for gainful employment. Great Britain has now ended its long experiment with a binary system of higher education in which there was to be a clear and abiding distinction between universities and polytechnics. Great Britain has also aggressively adopted market mechanisms to distribute public funds, even as most universities have had to scramble to make required budget cuts.

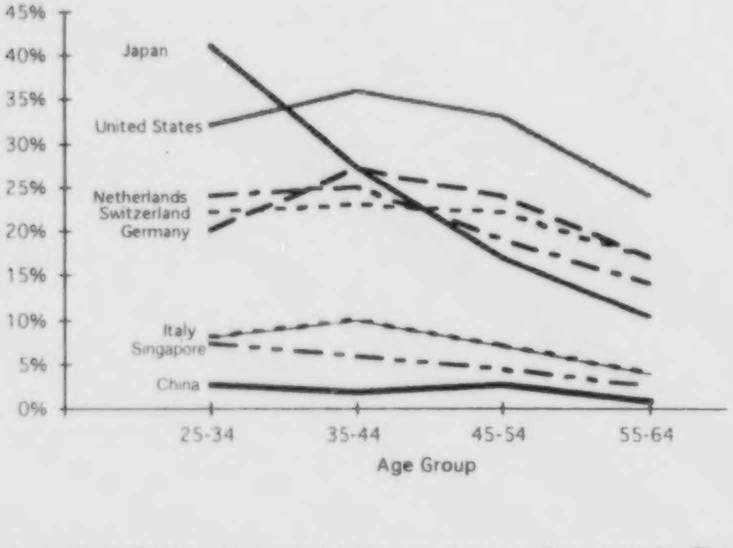
Across much of continental Europe, the continuing expansion of participation rates has been accompanied by reduced budgets for universities, less certain opportunities for graduates, and greater stress among faculty. In northern Europe, including France, the specter of youth unemployment looms increasingly large — as, indeed, most of Europe continues to struggle with levels of unemployment not seen since the end of the Second World War. These patterns suggest what could have happened in the United States had its current generation of young people belonged to a larger, rather than an historically smaller, cohort. In Europe, the social and educational ambitions ratified by the revolutions of 1968 have now collided with a set of economic realities yielding reduced employment and fewer public funds to support higher education's further expansion. A potential victim of this collision may yet prove to be the apprentice systems of Germany and Switzerland, as more youth and their families opt for the higher status of a postsecondary degree.

For Asian countries outside of Japan, there may not be parallels. My understanding is that, at least for the present, China will continue to focus on basic and primary education, thus resisting the temptation of massification. Nonetheless, China also is worried about how well its youth are being prepared for the rigors of a socialist market economy. Singapore may represent yet another exception, though its accelerating development may sow the seeds for the same transition from massification to post-massification that now troubles so much of the developed world.

The comparative data that are available, principally through the OECD, suggest the kind of singular patterns that Professor Arimoto proposes underlie this transition. What strikes me about Figure 8 is the extent to which the distributions for Japan and the United States may be anticipating the distributions for the other countries, even allowing for the experiences of Italy (an older society still in the process of transformation) and the Netherlands (a country whose educational system still allows for early school leaving). What troubles the OECD, interestingly enough, are some of the same issues that, in the case of the United States, seem to explain the transition from massification to post-massification. Its Centre for Educational Research and Innovation's just-released *Education at a Glance Analysis* observes:

> In seeking ways of improving the alignment between education, training and the labour market, all OECD countries face similar difficulties and tensions. There is a demand for general skills and for high levels of general education, but at the same time there is a need for learning that is directly relevant to the work setting. Employer support is likely to be strongest for vocational programmes that do not lead on to further education, but such programmes may attract less support from students and parents.

Figure 8 Percentage of Age Group That Has Completed a Tertiary Education (1994)



Let me conclude, then, by reviewing the central tenets of my remarks. There is a powerful case to be made in support of Professor Arimoto's proposition of a general pattern that describes the transition from massification to post-massification — a transition both occasioned and made more difficult by changes in the economy that reduce the resources available to colleges and universities. To this argument I have basically added economic and educational detail. In the United States, it is the expanding ambitions of middle- and upper-income families in combination with reductions in the demand for young workers that is leading to the restratification of American higher education on the one hand and, on the other, to the formation of an outlet market for students who combine work with learning and are more likely to purchase their college educations one course at a time.

To what extent have there been similar or parallel patterns in the other countries represented at this seminar? To what extent do their "times of trouble" have common causes — and is one of those causes a reduction in the demand for young workers due to larger changes in the economy? Is post-massification leading to a restratification of opportunity, thus negating one of the principal gains of massification? Is a mass market for higher education courses developing, thus reducing the importance of university attendance as a rite of passage for the young and gifted?

These are important questions well worth the deliberations that have brought us here to Hiroshima.

Massification of Higher Education and Academic Reforms in Japan*

Akira Arimoto
Hiroshima University

Introduction

This report will focus on two of the main trends evident in the theme identified by the title of this paper. The first trend is related to the innovations in the academic functions of research, teaching, and social service; these innovations are taking place in the process of coping with the tension and discrepancy between quantity and quality which have been caused by the massification and diversification of higher education. The second trend is related to various reforms at the level of the national system and the individual institutions and organizations arising from similar factors, especially focusing on organizational reforms.

· Perspective and methods of analysis

As Figure 1 shows, various aspects of knowledge expressed as an academic discipline, identify different characteristics and functions. First, understanding of knowledge identifies learning; second, discovery implies research; third, dissemination means teaching; fourth, application embraces social service; fifth, control requires administration and management. Reflecting these characteristics, there exist in the institutions organization for research, teaching, service, administration and management, respectively.

Conventionally, among these aspects of knowledge, all except learning seem to have a vested interest in research on academic organizations; learning is usually excluded from analysis because it is largely neglected as an academic activity within academia. Any implication that this is a negligible academic function is self-evidently incorrect. The centrality of learning to all academic work renders it implicit in all other academic functions—research, teaching, social service,

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*Paper presented as a Country Report, Japan.

Figure 1 Aspects of Knowledge and Academic Organization

knowledge characteristic	operational function	type of organization	level of organization
understanding	learning	organization of learning	individual
discovery	research	organization of research	sectional
dissemination	teaching	organization of teaching	departmental
application	social service	organization of service	institutional
control	administration and management	organization of administration and management	institutional; national

administration and management. As a prerequisite for academic work, the function of learning can properly be assumed to be intrinsic to academia but it can no longer be assumed to be an implicit attribute of university education: enabling students to learn how to learn becomes a required activity. Moreover, as discussed later, an understanding of the processes of learning is becoming increasingly indispensable as the academic system articulates a lifelong learning society.

Consideration of the various aspects of knowledge emphasized some of the attributes of academic organization, notably its social condition, function, and structure of academic organization. As a center of learning, academic enterprise carries out the functions of research, teaching, and social service based on the resources of knowledge, the advancement of knowledge, and academic discipline. At the same time, it also forms groups, organizations, institutions, and systems on axes of these various academic activities. A main aim of academic enterprise is the development of knowledge and hence it also contributes to social development. When the social expectation of academic enterprise is rapidly modified by the effects of social change, it can hardly realize maintenance and development of its own institutions and organizations without being conscious of its own function and role with regard to external society.

Changing social expectations of academia necessarily imply academic reforms in terms of functions and structures in order to meet these expectations. In this process, the various causes and problems of organizational reforms can be concretely recognized by the academic system and institutions in accordance with the development of higher education through the stages of elite, massification, and post-massification.

1. *Massification of Higher Education and Organizational Reforms*

· **Relationship between academic organization and massification of higher education**

An academic system has various functions based on the nature and logic of knowledge and hence it is necessary for the system to integrate these functions in its institutions and organizations. The learning function, as mentioned above, should be paid more attention as a function basic to academic work and hence to academic system and institutions. The research function is derived from discovery of knowledge and this logically results in making many fields of specialization in the departments of the institutions. On the other hand, the teaching function, derived from dissemination of knowledge to students, focuses on integration of diversified knowledge. The social service function of application of knowledge to external society involves a variety of activities including academic extension programs. These three functions, though they are derived from the same core of knowledge, proceed separately, often accompanied with tensions and conflicts. The function of administration and management is derived from a control of knowledge and has a power to adjust and control other functions.

Within these functions, the academic system provides a system of higher education through the function of teaching, generating as the system expands in size much friction with other functions. Accordingly, massification encounters problems, less or more, as its development proceeds from the underdeveloped to the developing and to the developed or post-massification stage. Academic institutions, especially academic organizations, are expected to make reforms to cope with the expansions of nationwide systems at the various stages of massification to maintain the quality and standards of academic functions which are based on the function of discovery and creativity related to the logic of knowledge and academic discipline.

· **Tentative definition of the stage of massification of higher education**

The features of massification have two aspects: quantity and quality.

First, the quantitative feature of massification provides an index of participation and quantitative standards, as was originally identified by Martin Trow corresponding to the stage in which from about between 15% to 50% of the eighteen-year-old cohort has access to universities and colleges. This model is still valuable in discussing the quantitative side of massification, though it may need to be modified by introduction of a new index of population including adult and part-time students in addition to the eighteen-year-old cohort.

Second, the problem of quality in relation to quantity accompanies masssification. It deals with the aspect which is not made clear by the quantitative index, examining the tensions and conflicts arising between quantity and quality. During quantitative expansion through massification, conversion toward homogeneity, uniformity, and standardization brings about qualitative conflicts with the traditional objectives of elite higher education of heterogeneity, disparateness, diversification, and individuality. Quantitative expansion will gradually expose much manifest conflict between quantity and quality. Such conflicts loomed up in Japan at the time of "campus turmoil" in the late 1960s and since then solution of them has plunged into the indispensable agenda. It has become an issue at the level of system, institution, and organization to make adequate coordination and solution of the various kind of strains, conflicts and frictions between quantity and quality, and also between equality and excellence, in the state of massification of higher education.

Before saying something about the actual state of massification, it is noted here that the Japanese system is now shifting from the massification stage to a post-massification stage — in the sense that it has some factors related to resolution of tensions and conflicts between quantity and quality under increasing economic retrenchment in the country. The following quotations are based on the proposal paper delivered in the Second Six-Nation Conference (Arimoto, 1996) ; "Under the national budget retrenchment, the management and social function of academia is to be reviewed in terms of economic rationalization and accountability. Actually, serious examination of academic organization (especially its structure and function) has been introduced through various kinds of academic assessment from the need for reform on the basis of economic rationalization, efficiency, effectiveness, and accountability."

"As a whole, the policy has shifted towards the possibility of natural selection among institutions in accord with a market-directed principle."

"Academic self-study and evaluation was asked of every institution in return for introducing deregulation to maintain a high qualitative standard sufficient for the higher education system."

"Accountability is stressed under the circumstances that society including government, sponsors, consumers, has something to say about the purpose of university and college; hence the academic reform is going to be driven by the initiative of society rather than university and college themselves."

(1) The Expansion of Higher Education

· Definition of higher education

There are two types of definition: broad and narrow. In the broad definition, the category of higher education is as wide as the full range of postsecondary education: daigaku (universities, tanki-daigaku (2 year colleges), koto-senmon-gakko (colleges of technology), senmon-gakko (special training schools), kakushu-gakko (miscellaneous schools), kigyonai-kyoiku (OJT in companies), tsushin-kyoiku (education by correspondence), seijin-kyoiku (adult education), etc. In a narrower definition, it means only daigaku (graduate and undergraduate courses), tanki-daigaku, koto-senmon-gakko. There are also the categories of long and short term: the former contains both graduate and undergraduate courses, and the latter contains tanki-daigaku (Cf. Appendix, Chart 1). Brief statistics regarding these are shown in the following Tables. The discussion of higher education in this paper mainly focuses on daigaku (universities and colleges).

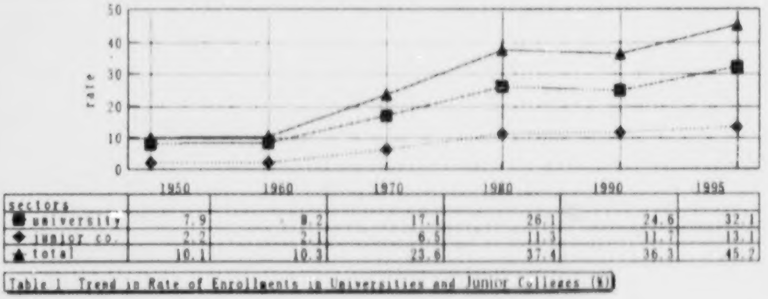
· Trends of quantitative development of higher education

Expansion is clearly observable in all the indexes of numbers of institutions, students, and teachers, and the following traits are recognizable in relation to these expansions.

First, the increase of the number of institutions shows that Japan plunged into

Table 1 Trends in Rate of Enrollments in Universities and Junior Colleges (%)

	1955	1960	1970	1980	1990	1995
university	7.9	8.2	17.1	26.1	24.6	32.1
junior college	2.2	2.1	6.5	11.3	11.7	13.1
total	10.1	10.3	23.6	37.4	36.3	45.2



Source: Monbusho 1996

the stage of massification in the midst of 1960s when the proportion of the age group advancing to universities and colleges exceeded the threshold of 15 percent; in 1963 it marked 15.4 percent by total enrolment rate of university and junior college (Table 1; Appendix, Figure 4.1). Between the 1970 and 1990s the enrollment rate stabilized though recently it is ascending again. It is in fact gender driven. The recent increase in participation are almost entirely due to higher enrollment by women students. It may be said that increase in the 1960s is "the first massification" and that in 1990s is "a second massification". In the latter stage, enrollment is almost achieving the 50 percent level, constituting Trow's universal stage. In this regard, higher education has now realized a shift from massification to a post-massification stage and also from universal access to a universal attendance stage.

Some traits are distinguishable by observing the statistical trends of items such as changes in the proportions by sector (national, public, and private), type (undergraduate and graduate), and sex (male and female).

· **Trends in the number of institutions**

As of 1995, the number of institutions of higher education amounted to 1,223 (universities, 565; junior colleges 596; colleges of technology, 62); the total number of institutions of post-secondary education·were 4,699 (including 3,476 special training schools) (Table 2).

Among these, main considerations will be given here to trends in universities. In the split of number of universities by sectors, the national (and public) sector occupies about 30% of the total and the private sector about 70%

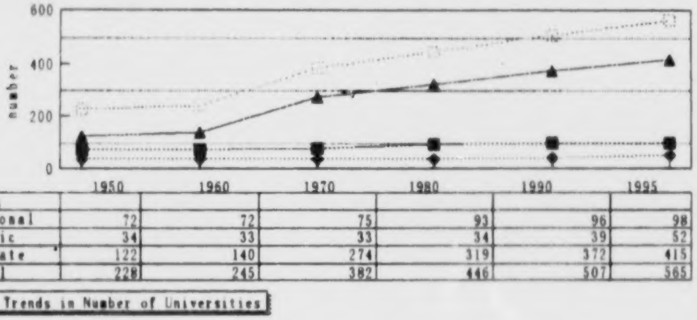
Table 2 Number of Institutions of Higher Education, 1995

types of institutions	total	universities	universities having graduate schools	junior colleges	collgees of technology
National	286	98	98	36	54
	(17.8%)	(17.3%)	(25.4%)	(6.0%)	(87.0%)
Local Public	148	52	31	60	5
	(9.2%)	(9.2%)	(8.0%)	(10.0%)	(10.0%)
Private	1174	415	256	500	3
	(73.0%)	(73.4%)	(66.4%)	(83.8%)	(3.0%)
Total	1608	565	385	596	62
	(100.0%)	(100.0%)	(100.0%)	(100.0%)	(100.0%)

Source: Monbusho 1996

Table 3 Trends in Number of Universities

	1955	1960	1970	1980	1990	1995
national	72	72	75	93	96	98
public	34	33	33	34	39	52
private	122	140	274	319	372	415
Total	228	245	382	446	507	565
share of private sector (%)	53.5	57.1	71.7	71.5	73.4	73.5



sectors	1950	1960	1970	1980	1990	1995
■ national	72	72	75	93	96	98
◆ public	34	33	33	34	39	52
▲ private	122	140	274	319	372	415
Total	228	245	382	446	507	565

Table 3 Trends in Number of Universities

Source: Monbusho 1996

(Table 3). This may be characteristic of Japan's higher education as compared with that in Europe and America where the share of the public sector is much the larger. Through the post-war period, increase of institutions in the national and public sector has been intently controlled by the national government, while the private sector has expanded to meet the demands of massification.

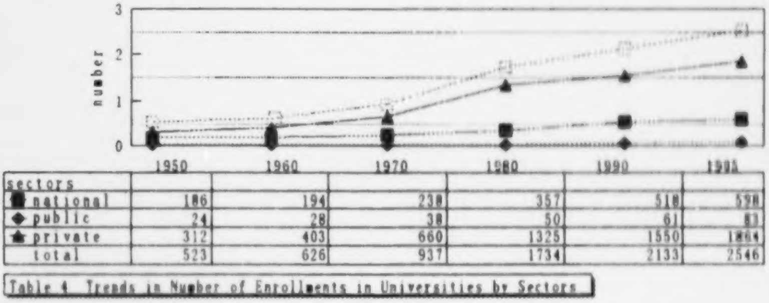
· Trends in enrollment

Total enrollments in universities (at both undergraduate and graduate levels) in 1995 were 2,546,000 (undergraduate, 2,330,000; graduate, 153,000), with 73.5% in the private sector and 32.3% female students of the total (Table 4; Appendix Figure 2.17). The share due to the private sector has kept almost the same weight since 1970s but female enrollments have shown a continuous gradual ascent. Effects of massification are concretely reflected in these figures. In addition, a kind of role differentiation between two sectors is recognizable in such trends.

Analyzing it from disciplinary perspective, the national sector has been proportionately more responsible for the fields of sciences and engineering, while

Table 4 Trends in Number of Enrollments in Universities by Sectors (in thousands)

	1955	1960	1970	1980	1990	1995
national	186	194	238	357	518	598
public	24	28	38	50	61	83
private	312	403	660	1325	1550	1864
total	523	626	937	1734	2133	2546
share of private sector (%)	59.7	64.4	70.5	74.4	72.2	73.2
female	65	85	152	252	584	821
share of female (%)	12.4	13.7	16.2	22.1	27.4	32.3
undergraduate						2330
graduate						153



sectors						
■ national	186	194	238	357	518	598
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▲ private	312	403	660	1325	1550	1864
total	523	626	937	1734	2133	2546

Table 4 Trends in Number of Enrollments in Universities by Sectors

Source: Monbusho 1996

the private sector dominates other fields, notably humanities and social sciences. As of 1995, for the 2,330,000 undergraduate students, national, public, and private sectors have 20.2%, 3.1%, 76.5%, respectively. The top five major fields in terms of enrollments are: social sciences, 40.1%; engineering, 19.6%; humanities, 16.1%; teaching, 6.3%; sciences, 3.6%; but these are unevenly distributed between the sectors. Within the national sector, engineering constitutes 30.2% of enrollment, teaching, 19.9%, social science, 16.7%, science, 6.9% and humanities, 6.8%; in contrast within the private sector, social science constitutes 46.4% of enrollment, humanities, 18.2%, engineering, 17.0%, teaching, 3.0%, science, 2.6%. The much larger portion of enrollments in the fields of social science and humanities provided by the private sector reflects both their lower educational costs and the sector's ability to respond during the period of massification.

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Table 5 Trends in Number of Enrollment in Graduate Schools by Sectors (in thousands)

	1955	1960	1970	1980	1990	1995
national	5	8	16	23	57	97
public	0.4	0.8	2	2	3	6
private	4	5	9	15	28	49
total	10	15	40	53	90	153
share of private (%)	46.6	37.8	33.4	36.9	31.5	32
female	0.5	1	2	3	14	32
share of female (%)	5.8	7.1	7.5	8.7	16.1	21.5

Source: Monbusho 1996

Because the national and public sectors have had strong hegemony, this differentiation extends to the graduate schools, which have been under intensive development in recent years. About 70 percent of all graduate students in 1995 were enrolled in the national and public sectors (Table 5; Appendix, Figure 2.18). These sectors have constantly produced almost 80 percent of all doctoral degrees conferred during the post-war period. In particular, the former seven teikoku-daigaku (imperial universities) have produced about half of all doctoral degrees awarded in Japan. As a result, it is said that the national and public sectors have been more involved in sustaining the quality of academic work by controlling expansion, while the private sector has been more involved in expansion.

Table 6 Trends in Number of Teachers in Universities by Sectors (in thousands)

	1955	1960	1970	1980	1990	1995
national	22	24	29	36	53	57
public	4	4	5	5	6	8
private	10	15	22	34	63	71
total	38	44	57	76	123	137
female	1	2	4	6	11	14
share of female (%)	5.2	6.1	7.4	8.5	9.2	10.7

Source: Monbusho 1996

· Trends in number of teachers

The total number of teachers has increased gradually in parallel with the numbers of institutions and students. As of 1995, it had reached as many as 137,000 who have permanent positions in their institutions, and 112,000 who have non-permanent positions (Table 6). Permanent staff are distributed in the proportions of 41.8% in national, 6.0% in public, 52.2% in private sector. Female staff number, 14,752 (10.7%), and foreign teachers, 3,858 (2.8%) : the numbers in both of these two categories may be ranked low in an international comparison. The total permanent academic staff are distributed amongst grades as follows: presidents 551 (0.4%) ; vice presidents 203 (0.1%) ; professors 51,551 (37.5%) ; associate professors 31,507 (22.9%) ; assistant professors 17,534 (12.8%) ; research assistants 36,118 (26.3%). There are proportionately many more professors in private universities (48.2%) than in the national universities (32%).

· Trends of funding to the institutions of higher education

Following the severe budgetary restraint imposed by the national government since the early 1980's, expenditure on higher education, especially on national institutions, has been reduced (Appendix, Figure 3.6). But, recently, recognition of the consequent damage to the institutions in the national sector due to these reductions has given rise to some improvement. Higher education is funded through a special account, established in 1964, which separates budgeting and accounting for the national educational institutions from those of other bodies; this account is independent of the general account of the national government. The total budget of the special account for the 1995 fiscal year was 2.5 trillion yen, with the following sources: 1.5 trillion (62.0%) from the general account of the national government; 0.4 trillion (17.8%) from incomme of hospitales attached to the institutions; 0.3 trillion (11.5%) from student fees, etc (Appendix, Figure 3.1). Additionally, subsidies are also provided for the private institutions of higher education which amounted 280.3 billion yen in 1995. (this subsidy has declined from its peak in 1980.)

Apart from the special account funding, the national government subsides the budgets and grants to researchers and teachers for their research projects through competitive allocations assessed on the basis of preceding achievement and reputation. Expenditure on research grants amounted to 55.8 billion yen in 1990, and it increased to as much as 92.4 billion yen in 1995.

(2) Reforms of Higher Education System

The post-war academic reforms proclaimed the construction of a new university system for mass-higher education, and satisfied some general requirements: compatibility with the 6-3-3-4 educational system; coeducation; location of at least one national university in each prefecture. Substantial reform from the old to new system was however postponed until the 1960's when the massification stage, according to the Trow-model, really took off. Until then, new-system universities had been constrained within the structure of the old imperial universities. The inability of new-system institutions of higher education, particularly universities to assume responsibility for the age of massification was a source of criticism of the ensuing "campus turmoil" nationwide. Since then it has become a focal matter for academia to engage in making reforms concretely to cope with massification and post-massification.

Accordingly, various reform plans and council-based recommendations have been made towards the reform of the system, institutions, and organizations from a perspective of national policy as well as at the level of every campus. Especially important reports and recommendations from national policy level are seen in those drafted by Chuo-kyoiku-shingikai (the Central Council for Education), Rinji-kyoiku-shingikai (the Extraordinary Council for Education), and among them particular consideration should be paid to the recommendations of Daigaku-shingikai (the University Council, UC) which was established by the second report of 1986 submitted by Rinji-kyoiku-shingikai. It is important to emphasize the role of UC, since its recommendation resulted in Monbusho-rei (the ordinance of the Ministry of Education, Science and Culture) in 1991 which is bringing about the age of academic reform today.

UC which was established in 1987 reviewed several issues: up-grading of research and teaching; individualization and diversification of higher education; renewal of organizational management. The first two matters were emphasized in the first reports, and the last one has been included from 1991 onwards. Meanwhile, the framework of planning and improvement of higher education has been examined in a sequence of discrete planning periods from 1976: 1976-81; 1981-86; 1986-92; 1993-2000. Throughout these plans, the basic ideas have been focused on two priorities: an emphasis on diversification and flexibility of higher education reflecting its massification; and a stress on improvement of quality rather than merely an expansion of quantity in dealing with universities and junior colleges (Daigaku-shingikai, 1993a, 1993b, 1993c).

The latest of UC's new planning periods (1993-2000) aiming to cope with two points: improvement of quality and institutional reform in higher education; and the decline in number of the eighteen-year-old population. Over this period promotion of flexibility of higher education and improvement of quality to be more significant than expansion. The philosophy continues on the course set by the doctrine of 1976, though the new plan seeks more progress towards institutional innovations. As for the side of promotion of flexibility, it proposes a system of credit accumulation where Gakuijuyo-kiko (National Institution for Academic Degree) can approve the accumulated credits which are obtained by students at various institutions.

As for the improvement of quality, UC concretely explores three problems: reinforcement of the teaching function; promotion of research and teaching of the international standard; and adequate response to the arrival of a lifelong learning society. In attempting to solve these problems, it indicates that each institution should conduct a self-review and evaluation of its daily academic activity.

Regarding the reinforcement of teaching function, UC proposed four concrete objectives to be achieved: a buildup up of ability to respond to the needs of a changing society — such as an ability to deal with information, with foreign languages, with communication, etc.; a supply of programs showing consideration for student's learning abilities; raising the standard of academic staff's teaching ability and morale — by introduction of faculty development (FD), evaluation of teaching ability, etc.; and contrivance of teaching content and method having consideration for international students — such as improvement of Japanese language education, of entrance examinations, introduction of semester system, etc.

Regarding promotion of research and teaching at the international standard, it proposes two points: raising the standard of the environment for teaching and research — improvements of research funds, facilities and equipment, teaching organizations, graduate systems, information networks, etc., and construction of Centers of Excellence (COE) in each academic field, and introduction of a contract system for faculty personnel; keeping and training of abler students — organizational and systematic improvements to the curriculum and teaching in graduate schools.

Regarding a response to the emerging lifelong learning society, it proposes three concrete objectives: more flexibility for the forms of achieving credits; contrivance of evaluation for the results of various forms of learning; and positive contributions to the local community — extension of use of university library, classrooms and lectures, facilities, information services, cooperation in research by academia and society, etc.

The characteristics of the new planning period, which is now examining the perspective of the nationwide scale of higher education, can be seen in that it forecasts a future perspective by showing figures for several alternatives instead of the single planned figures adopted in earlier panning periods (Daigaku-shingikai, 1993a, 1993c). Among the estimated three cases for the year 2,000, the main case, with an enrollment rate of 40.0%, forecasts an enrollment of 649,000 which means a decrease of by 89,000 compared with that in 1990. This figure already needs to be corrected because enrollment has already surpassed the estimated rate in 1996. It is interesting to note that expansion is still proceeding as is shown by the phenomenon of "the second massification" mentioned above. It is also notified that in the new planning period there is introduced, for the first time, a figure for nontraditional students—such as 30,000 adult students—and 1,500 foreign students in addition to traditional students. If these figures are added to the originally estimated figures, the rate as well as the number of enrollments will need to be increased even more.

(3) Organizational Reforms at Institutions

As well as planning academic reforms at institutional level in accord with the directions indicated the nationwide system, there has been a real trend to implement actual reforms. In fact, abrupt reforms were initiated in many institutions after Monbusho-rei was issued in 1991 on the basis of UC's recommendation. Rather standardized reforms have been taken place throughout the country to a considerable degree. Even so, however, some institutions are using the new environment to conduct reforms different from those of other institutions in order to establish sufficiently unique characteristics to ensure an identity and survival (Kokuritsu-daigaku-kyokai, 1995).

2. *Change in the Structure and Function of Higher Education Coping with Massification: Various Problems and Conflicts*

Observing the reforms taking place in individual institutions as well as the national academic policy and plans, it is clear that much consideration is focused on solutions of the accumulating problems arising through the process of massification and this has become current agenda in many institutions throughout the country. In examining these problems, it is useful to review the state of academic structure and function.

(1) Change of Structure

Proceeding to substantial massification in a short time-span inevitably brings about conflicts and frictions in academic structures as well as academic functions. As a result it is not surprising that institutions have had to adopt an urgent agenda for practical coordination and solution. Conflicts are expected to be most evident in those institutions and organizations having rapid and large expansion, and in fact problems increased, latently and manifestly, in the mammoth enterprises in the private sector. Various problems appeared: Mizumashi-nyugaku (over enrollment of students) ; mass-production class-room teaching; decline of teaching quality; mass-produced inferior students; loss of social accountability.

Actually, each institution is compelled to identify its own problems for reform. Indeed, universities, the home of the academic community, with science and scholarship as its fundamental function, should conduct innovation and reform incessantly so as to meet and resolve such problems with the logic of academic discipline. By these means it should be expected to conform to both the demands of massification and the development of science and scholarship. Concretely, at the level of academic institutions and organizations, there are many problems to be solved with respect to the fundamental structural components: tier, section, sector, and hierarchy (Cf. Clark, 1983).

· Tier (Faculty)

First, the single-tier faculty structure of the dominant gakubu (faculty) which was appropriate for a university at the elite stage, needs to be changed because it can not work well at the massification stage. Undergraduate and graduate organizations have coexisted without clear separation of two parts for long years under the single tier of gakubu since it was introduced from the West into this country before the War. But, this has gradually become out of fashion as a result of quantitative expansion of institutions. It seems that this type of organization can not respond well to the logic of research, discovery of knowledge and subject discipline, or for raising the standard of science and scholarship. It has become necessary to look for an internal division of organization in response to a vertical differentiation of knowledge and disciplinary areas.

One of the devices for this purpose, for example, is a separation of the organization to conform to differentiation of degrees—Associate, Bachelor, Master, Doctor (and perhaps Post-Doctor). In addition to responding to the logic of research, quantitative pressure demands an organizational function for screening students. Furthermore, the type of gakubu-based organization can not respond well to massification of higher education in that it has difficulty in integrating all the functions of academic discipline including research, teaching, and social service together in a single tier organization. The teaching function especially faces most difficulty as a result of the enormous expansion of student numbers. Accordingly, the single tier needs to be split into multiple tiers having undergraduate, graduate, and post-doctoral organizations (Appendix, Figure 2.14). Neither can conflicts between general education and special education be solved in a single tier structure; they should be separated and then integrated organically into the undergraduate and graduate organizations, respectively. It might be said that such reform of organization is product of functional differentiation and rationalization caused by expansion at the stage of massification.

· **Section**

Second, there is organizational reform of the sections into which an institution is divided: chair, department, institute, faculty, school, etc. Frictions are caused as massification demands each section to engage in sufficient improvement of organization for teaching.

a. Coexistence of a research organization with a teaching organization, typically as in gakubu, is made increasingly difficult by the compartmentalization of scientific knowledge and academic disciplines horizontally, needing an inevitably similar fragmentation of organization of research. Development of academic discipline has resulted in a horizontal restructuring into sections such as departments, institutes, etc., and forming the small chair system into a multiple chair or a departmental system.

b. The Japanese organization of gakubu had functioned well in uniting the organization of teaching for students with that of research for academic staff. Such integration, however, is disorganized by the effects of massification to the extent that clear differentiation of the two organizations into lower and upper tiers as is seen in the American mode becomes necessary, partly because of the logic of research and partly because of the logic of teaching. In faculty the preceding organization of gakubu has developed well as a research organization, valuable for encouraging the research activity of academic staff, while it has failed to develop as an effective teaching organization for encouraging the learning activity of students.

Massification has brought about the necessity of reconstruction of the teaching organization for students, especially for their general and liberal education. Accordingly, academic staff have to escape from the "takotsubo" (pot for octopus) —a closed organization suited solely for research—to an open organization for teaching concerned with the aims, norms, functions, and structure of teaching— including curriculum, teaching method and technology, evaluation, etc.

Of course, integration of the functions of research and teaching is intrinsic to academic enterprise, and this is expected to be done at the institutional level embracing both undergraduate and graduate organizations, though functionally separation of these organizations has to be deliberately promoted as the first priority today.

· Sector

Third, reform from the perspective of sector is indispensable. Previously competition and cooperation among national, public, and private sectors have contributed to the development of higher education to a considerable degree, but it is now confronted with some difficulty. It is said that Japan's way of institutionalizing the differentiation among several sectors has functioned well in responding to massification especially by combining expansion of the private sector with control of the public sector. In this sense, it might be said that introduction of the market principle has been working well in the academic world.

But, it is also said that despite the success of quantitative development qualitative development of the system and the constituent institutions has been not similarly successful. One of the reasons for this may be that deregulation of the conditions for establishment of new academic institutions and the introduction of the market principle into academic world have had only limited success. In the academic world, the ethos of the former imperial universities has provided a strong mold for newly born institutions to the extent that over an extended period of time they were unable to avoid limitation. Consequently, sectorial differentiation itself has not created real individualization and identify of institutions valuable for international as well as national competition.

· Hierarchy

Fourth, reconsideration of academic hierarchy is necessary. The existing institutional stratification was reproduced and enlarged in the dual structure provided by the national sector mainly based on the former imperial universities and the private sector mainly based on the former senmon-gakko (technical institutions). The former provided the source of elite education, while the latter that of mass education. It might be said that such a dual structure was designed as the origin of a degree-ocratic society, since strong a parallel relationship is recognizable among social class, college-oriented schools, prestigious universities, and joujou-kigyo (list-firms). This academic hierarchy functioned effectively in selection and placement of students. Shiteiko-seido (a system of designated universities and colleges advantageous for recruitment—which is reportedly applicable to only 10% of the universities and colleges now existing) identifies clearly a structure in which graduates from prestigious institutions have advantageous conditions for placement in employment. It is interesting that this tight relationship between the two worlds of academe and business, both of which have shared a lifelong employment and seniority system, is now being diminished under the increasing pressure of market principles.

It is also evident that the same prestigious institutions have established a custom of inbreeding: they usually recruit their staff from their own graduates. This closed system impedes improvement of identity and distinctiveness at other institutions and organizations. Insufficient academic drift has occurred thus far due to the absence of ay mechanism for modifying the hierarchical structure by means of individual movement and university interchange.

· Administration and management

Fifth, Reforms are needed to administration and management which was established during the time of economic growth, enrollment increase, and organizational expansion. In order to respond swiftly to social changes, to pursue accountability and relevance, and to prevent crises accompanying daigaku-tota (university's weeding out), careful reviews should be taking place about the structure and operation of administration and management. In particular, the introduction of market logic needs a major review of priorities as is explained below in detail.

(2) Change of Functions

Universities and colleges are knowledge-based enterprises. As described above, understanding, discovery, dissemination, and application of knowledge arise from the functions of learning, research, teaching, and social service, respectively. Such functions are indispensable for maintaining academic organizations, but the relative emphasis changes with time and with place. Historically, it might be said that academic organizations put much weight on in medieval period teaching; in the modern age, on research; and on teaching and social service under the extension of a research-orientation in the present age. In modern universities, research-orientation or a research paradigm is inclined to rule not only in research universities but in other institutions including liberal arts colleges.

Japanese universities are not exceptional. It is true that the volume of research increases in universities at the stage of massification, but more attention is then paid to teaching as well as learning. Reforms of teaching, curriculum, and educational technology are necessary from the perspective of providing sufficient consideration for the more diversified needs of students. In the Japanese university system, which originally imported the German research-university model into Teikoku-daigaku, a research-orientation is still working strongly under the present system of mass higher education (Cf. Teichler, 1996). The Carnegie international survey on the academic profession indicated several interesting patterns, among the participating countries, regarding the relation of teaching and research. Research-orientation, which may be categorized as the German model, is clearly evident in Germany, the Netherlands, Sweden, Korea, and Japan; a teaching-orientation, categorized as the Latin American model, is formed in Mexico, Chile, Argentina; and a combined teaching and research orientation, designated as the Anglo-Saxon model, covers the United Kingdom, Australia, Hong Kong, and U.S.A (Boyer, Altbach, Whitelaw, 1994; Arimoto and Ehara, 1996). It is interesting to note that in conformity to this, most Japanese academic staff are research-oriented in almost all institutions from research universities to junior colleges, with only a few identifying themselves as belonging to the category of teaching-oriented.

All institutions should be expected to make clear their own aims of education instead of imitating a research-orientation peculiar to the research universities and, for that purpose, should develop teaching structures as well as teaching activities. Looking squarely at the fact, the first thing to engage in is introducing innovation into teaching throughout the system of higher education, and realizing an organic integration of the system after its modification to accommodate massification. Concretely, an organic integration should take place by the separation of functions among several types of institutions: research-oriented universities; teaching-oriented universities; professional universities; open-door colleges.

(3) Pursuit of Teaching Innovation at the Stage of Massification

Realization of reform is not only for teaching at the system level but also that at the institutional and organizational levels. Suitable responses are needed to be identified on the basis of inquiry of the present students.

First, the proportion of new or non-traditional students is increasing, as is established by various surveys on the present situation of student diversification: general students, female students, adult students, foreign students, etc. At the same time, a new trend is evident in regard to the diversity and decline of student's academic preparation achievement, competence, and dedication. This trend can generally be related to any institutional responses to massification which have introduced a sort of open-door policy and hence a leveling-down of student's ability and achievement at the entrance examination: ichigei-nyushi (a form of entrance examination advantageous for students who have special talents); recommendation of students by senior high schools; fewer required subjects for entrance examination (eg. differentiation of the sixteen subfields of five subjects into thirty-four subfields of six subjects). In addition, it may be related to the more extensive subject-choice following reform of the curriculum at the senior high schools.

Given that students have become more diversified in their competence, achievement, communication ability, etc., innovations for teaching become inevitable. Changes require introduction of a variety of devices: small size class; a Socratic method of learning; kyoyo-seminar (special seminar for introductory liberal education) ; evaluation of teaching by students as well as monitors; self-evaluation, mutual evaluation, and external evaluation (Simemura, 1996).

· Present problems at teaching innovation

There are two main reasons to think that reform is still lingers at the first stage. First, many students seem to be indifferent to the present academic reforms. It has been pointed out as a popular phenomenon throughout the country that students have two types of shigo (chattering and silence) in class-rooms and also they are unconcerned about the reforms under way. In these circumstances, without student's support to faculty members, no teaching innovation will be accomplished.

Second, faculty members generate an environment — a climate, atmosphere, and nature in which they are likely to agree with the general but disagree with the particular. Most are generally indifferent to institutionalization of faculty development (FD) or staff development (SD) as well as self-evaluation, though actual implementation of reforms demands their participation. Behind this climate, there exists the fact that they are more committed to research than teaching. The reasons for this are as follows:

a. Teikoku-daigaku imported the German model of research-orientation but the postwar system introduced a model of mass-higher education. Against this background, however, the teikoku-daigaku model and accordingly a research-oriented model have enjoyed a strong prestigious position among academic staff nationwide as a means of achieving both personal and institutional esteem and parity with other institutions and have sustained the climate of research-orientation.

b. As shown by the fact that research universities are located at the top of the academic hierarchy, the reward system, with research-orientation at its center, is so dominant that it defines the content of academic staffing including such aspects as recruitment, promotion, and other awards. In a system where faculty members involvement in teaching is less valued and less evaluated as compared to involvement in research, it is natural that they are likely to neglect teaching.

c. Academic norms have worked thus far mainly for academics as researchers, not for students as learners. In other words, the gakubu system mentioned above has worked mainly for development of research, though originally it was intended to integrate research and teaching within it as it introduced the German model of the faculty system.

d. In the degree-ocratic society where names, brands, labels of institutions tend to be highly valued, less attention has been paid to university teaching regarding its content, added-value, quality, or even also its social accountability.

Observing such problems caused by the conflicts in the massification stage, reforms are necessary to provide teaching really responsive to the massification and post-massification stage.

3. Reforms of Administration and Management

As Clark Kerr pointed out, the American higher education system is compelled to make check and rationalization across whole academic organizations as a consequence of the effects of economic retrenchment (Kerr, 1994). Academic systems had developed well at the stage of preceding massification but in the present and near future when rationalization, market principles, accountability have become keywords and concepts, it is confronted with a post-massification stage where quality rather than quantity is increasingly demanded by the severe constraints of economic retrenchment and rationalization.

The academic system of Japan also faces the same kind of problems which will demand that each institution provides rational administration and management. The style and form of administration and management predominant at the time of expansion can hardly be expected to cope with the needs arising at a time of zero growth and accordingly checks, rationalization and improvement are needed.

In this context, some remarks may be made regarding the basic trend of reforms of the administration and management in relation to market principles and accountability.

(1) Introduction of Market Principles

Market principles usually demand efficiency, rationalization, competition, accountability, etc.

Introduction of such principles into higher education can be seen broadly throughout the world: Japan is no exception (Arimoto and de Weert, 1994). This is shown by the series of events described earlier: an establishment of UC as an embodiment of the recommendation of Rinji-kyoiku-shingikai; issue of Monbusho-rei in 1991 as the result of the recommendation of UC; the government's new academic policy to introduce deregulation of university establishment; beginning of reforms of administration and management; demands to raise the standard of teaching and research by self-review and evaluation.

Such principles were previously introduced into the academic world through the development of the private sector which has substantial autonomy in administration and management and is enjoying building university identity (UI) in the spirit and purpose of the foundation of the private institutions. But even in the private sector, a strategy for the survival of institutions and organizations seems to be of increased importance recently, since the sector is increasingly facing a pressure of more competition, freedom, and individuality. No institution, either private or public sector, can win a race for survival without achieving high quality and durable competence, accountability and relevance.

(2) Reforms of Academic Administration and Management

In the national sector, organization of administration and management basically consists of a number units arranged hierarchically from top to bottom of the university: gakucho (president), hyogikai (university council, or university senate), gakubu (faculty bodies), gakka (department), kenkyusho (institute), koza (chair), etc. Hyogikai consists of the president; councilors; deans; directors of institutes, centers, hospitals, attached schools, etc. Academic authority formally exists at the level of hyogikai but becomes substantially effective at faculty meetings where departments and chairs function as manipulating units at the base of the organization. Gakubu-kyojukai (faculty meeting at gakubu) elects a dean from its members. The dean and other two faculty members constitute councilors as the representatives of the gakubu. Hyogikai discusses and decides on problems related to the whole campus. The presidents elected by the votes of faculty members, presides at the hyogikai. An administration executive committee consists of the president, the head of library, dean of students, the deans of several gakubu, etc. representing academic interests, and the head of secretariat, the heads of sections, and some subsections, from the bureaucracy. Various committees constitute advisory organizations for the president and council, and the dean of students or vice-presidents often preside over these committees.

Such a structure has been traditionally maintained since the prewar period when the former imperial universities introduced the European type of organization which stressed autonomy of faculty rather than the authority of the presidency. Because of weak presidential power and an expectation of extensive discussion down to departmental level, the whole campus is faced with difficulty in making swift response to social changes and related expectations. This structure is likely to be reformed to establish greater presidential power and leadership from the viewpoint of market principles. As a result, some new posts are being established in the forms of vice-presidents and professorial assistant to the president, etc.; and the powers of hyogikai and gakubu-kyojukai are being reconsidered.

It is perhaps relevant that all staff both academic and nonacademic, in the national sector are civil servants and are bound by the conditions and expectations of public employees. The senior administrative officials in the national universities, the head of secretariat at the top, and the heads of bureaus, the heads of sections, the chiefs of subsections, etc. are bureaucrats appointed by and directly linked to the Ministry of Education. Control of these bureaucratic appointments is directly by the Ministry of Education, which provides the ministry with oversight and control of a substantial part of the administration and management of the national university sector.

· Trustee system and gakubu autonomy system

The private sector differs substantially in that it has adopted the trustee system found in American universities. In contrast to the national sector, the chairperson of the trustees holds the authority of the private school corporation or business side of enterprise and the president has responsibility for academic side affairs, and both are able to exercise strong power. The secretariat—which the trustees control—has less power and of course also has less control from the national government. The fact that two sectors have such different ways of administration and management might show the existence of a peculiarly Japanese mode. In the national sector, there exists a system balanced between the bureaucracy and gakubu autonomy, with differentiation of powers between the government and the gakubu-kyojukai and with weak power at the level of presidency. On the contrary, in the private sector, the trustees as well as the presidency have much more stronger power.

The national system with central bureaucratic control is seen to be suitable to realize a national academic policy efficiently in a short time span, and indeed it was successful historically in the process of introducing an academic model from overseas. However, at the present time when the direction of academic policy is internationally uncertain, the system is likely to be effective only if it can encourage individuality and free competition among the institutions.

Considering the positive and negative sides of the two systems, what is required is a system adaptable to market principles in order to promote freedom, competition, and individuality. The national sector especially should be expected to proceed in these directions by exercising power at the institutional level thanks to deregulation of governmental control. Among the two typical modes of administration and management, academic organization today is gradually swinging toward the top-down mode, or centralization of power, of the private sector rather than from the bottom-up mode, or decentralization of power, of the national sector. It is said that the Japanese mode is now shifting toward an American mode, with its strong trustee system being well responsive to the market. Of course, centralization of power is rational and efficient with respect to keeping strong leadership at the level of trustee and presidency. Nevertheless, there are quite limitations: both gakubu-jichi (faculty autonomy) and academic freedom are to be decreased to a considerable degree, though accountability works fairly well. It is perhaps not surprising that faculty members complain about loosing their vested rights and the powers of the kyojukai. Accordingly to the Carnegie International survey, faculty members in the national universities are highly satisfied with the present structure (Arimoto and Ehara, 1996). This probably means that the faculty meetings and direct participation in administration generate a positive response: yet this carries implicit delays as the dean, heads of departments, and faculty members usually devote much time in ringi (round robin), nemawashi (lobby, or behind-the-scenes maneuver) to get consensus among members in gakubu-kyojukai.

(3) Relation between Academic Freedom and Accountability in the Reform Today

As observed above, the national sector while it has tradition of strong gakubu-jichi (faculty autonomy) is searching for an administration and management organization which is able to pursue more accountability. In contrast, the private sector has many complaints among faculty members about the autocracy of the trustees and presidency; which in terms of power and authority confers the ability to be responsive to market forces. Since there is increasing tendency to friction and conflict between the top and the bottom of institutions in both sectors, improving arrangements for smooth communication between academic and non-academic components is necessary to resolve these frictions and conflicts and also to increase institutional and organizational vitality.

4. Present Situation of Academic Reforms and Its Relationship with a Future Vision of Academic Functions

(1) Basic Traits and Problems of the Present Academic Reforms in Japan

Based on the preceding observations, the basic traits of Japan's higher education today appear to be as follows.

· Higher education is standing at a highly advanced or matured stage of massification. In other words, it is now in the midst of shifting from a massification to a post-massification stage. Hence, quantitative expansion has reached a specific and remarkable standard in the field of higher education in the country; however, quality assurance and improvement of quality has become a great problem.

· Introduction of market principles into higher education system is necessary, and in fact the both the whole system, and individual institutions, and organizations have started to respond to the demands of accountability and relevance to society by making various reform plans.

· Academic control by the national bureaucracy has been weakened somewhat by introduction of the policy deregulation since 1991, and individual institutions have begun to pursue UI and individuality, though it is undeniable that the government control is still working to a considerable degree especially in the national sector where the secretariat functions as an arm of the national government.

· Self-evaluation systems, institutionalized in each institution as an apparatus set with deregulation policy, has yet to become sufficiently established in the academic enterprises (Appendix, Figure 2.27). For a long time since their establishment, many institutions have lacked a system, climate, or constitution for conducting self study and evaluation. This is now needed in order to enable institutions to assess the levels of their qualitative activity and academic content in response to the friction between quantity and quality engendered by massification.

· At this stage of massification, various academic reforms are needed in all academic fields—research, teaching, and social service—, but most particularly a reform or "revolution of teaching" is needed.

· At present when as centers of learning academic institutions are important to the information-centered society, it is essential for academia, equipped with knowledge and expertise, to contribute to society—local, national, and international. Achieving social development, provides the conditions for society to encourage and support the intrinsic activities; failure to do so would result in stopping academic development and subsequently, social development. Removal of academic freedom, for example, would threaten the existence of academic institutions as it has a fundamental relationship with the nature of effective academic work.

In addition, there are many problems accompanied by friction, conflict, and dilemma related to the massification of higher education:

· Higher education is increasingly confronted with value conflicts between quantity and quality.

· Academic organization and in particular the significance of academic freedom and autonomy is hardly understood by external society. Accordingly, academia faces to a conflict between accountability and academic freedom.

· Academic institutions and organizations are expected to be transformed from a kind of regulating apparatus for a degree-ocratic society to one of the key facilitators of a lifelong learning society where they will assist students in their learning.

· Institutionalization of an academic evaluation and reward system focussed on teaching is hard to construct.

· Teaching innovation is difficult to realize among academic staff who are more committed to research than teaching, even though it is necessary at this stage of the massification of higher education.

(2) Effects of Academic Reforms on the Formation of an Academic Model for Tomorrow and Its Perspective

· The present conflict between quantity and quality predicts a differentiation of higher education institutions into categories such as research university, teaching university, professional university, open-door college for universal access. Therefore, a total higher education system needs to realize simultaneously a coordination of differentiation and of integration among institutions. Concretely, a new to total system has to be established with traits of high standards, flexibility, individuality, currency, mutuality, etc. from a national and an international perspective. It needs to respond well to a society changing in direction towards internationalization, lifelong learning, high-technology based information networks.

· Japan's system, which was developed by the import of European and American models, formed its own structure over the past century. From now it is expected to build individuality in addition to currency and mutuality with an even wider range of foreign models. The existing individuality includes the following factors: early accomplishment of the massification stage; coexistence of plural sectors; predominance for the national bureaucracy and the national sector; an academic hierarchy with a pinnacle; nepotism and a high ratio of inbreeding in the academic marketplace. Analysis of a number of additional factors should be made from the same viewpoint: for example, currency of research and teaching in the international market; the ability of the system, institutions, and organizations to cope with the coming post-massification stage and lifelong learning society.

· The present trend of academic reforms gives an impression that it is making merely a symptomatic treatment of the frictions and conflicts caused by massification. Consideration of academic reforms for the future will need to analyze the situation and apply the results to thinking about the demands of future society for actual reforms.

First, a diagnosis and prescription on the basis of an accurate analysis needs to be prepared, in accord with the social changes inside and outside academic institutions that define the direction of reforms:

—social change: economic growth, budget; internationalization; information-orientation; restructure of industry; number of college-oriented population, etc.;

— national government's higher education policy and planning: recommendations of the various councils and committees;

—sponsors and pressure groups: the demands of consumers, foundations, firms, etc.;

—changes inside the academic institutions: development of scientific knowledge and academic disciplines; administrators; academic staff; students; non-academic staff, etc.

Second, a Japanese model should be built from the perspective of creating a new university for an new model of higher education. Japan has succeeded in importing and institutionalizing the advanced model of a modern university in the Western countries for a century. The German model was used as the main model in the prewar period; in the post-war period the American model was substituted. These two models have been competing with each other and causing tensions in the present hybrid system. Research universities which derived mostly from the former teikoku-daigaku (imperial universities) had the German model imprinted on them in the process of its institutionalization; while the new universities and colleges born in the postwar period were imprinted by the American model. In the present massification stage, a shift from the former to the latter is likely to be manifest and inevitable. It is also undeniable that the Japanese system has established its own characteristics.

Today, higher education has plunged into the age of no models. For example, the American model, which has been successful in leading other countries for a long time during the massification stage, is now compelled to protect quality by reducing, restructuring, and rationalizing institutions and organizations. Models built in an age of expansion must have a sort of limitation within them. This might suggest that the American model has a limitation as a university model to be overtaken by other countries in the stage of post-massification, in so far as it represents a pessimistic response to the current stage of development mostly due to recent economic retrenchment; nevertheless it is still remains one of the strongest models in higher education.

Third, it is inevitable that the consciousness and behavior of academic profession, the main participant in implementation of academic reforms, will become the key factor, especially in Japan (Cf. Boyer, 1990). Recently, academics have started to check priorities and roles appropriate to the academic profession, reconsider scholarship, institutionalize FD, conduct accreditation, review teaching and social service as well as research, etc.; however, the next development must be watched carefully, since the academic community is still standing at the initial stage of reforms.

Fourth, the formation of an international network is inevitable for universities and colleges, not only in Japan but also throughout the World, by using new technologies such as internet, multimedia, and SCS (space collaboration systems). Universities and colleges could increase their chances of survival into the 21st century, if they are active enough to introduce such newly developed and developing technologies into their own institutions as well as into nationwide and worldwide organizations in order to increase innovation and the progress of the logic of knowledge and disciplines.

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Appendix

Source: Ministry of Education, Science, Sports and Culture, Japanese Government Policies in Education, Science, Sports and Culture − Remaking Universities: Continuing Reform of Higher Education − ,1995.

Chart 1. Organization of Educational System(1995)

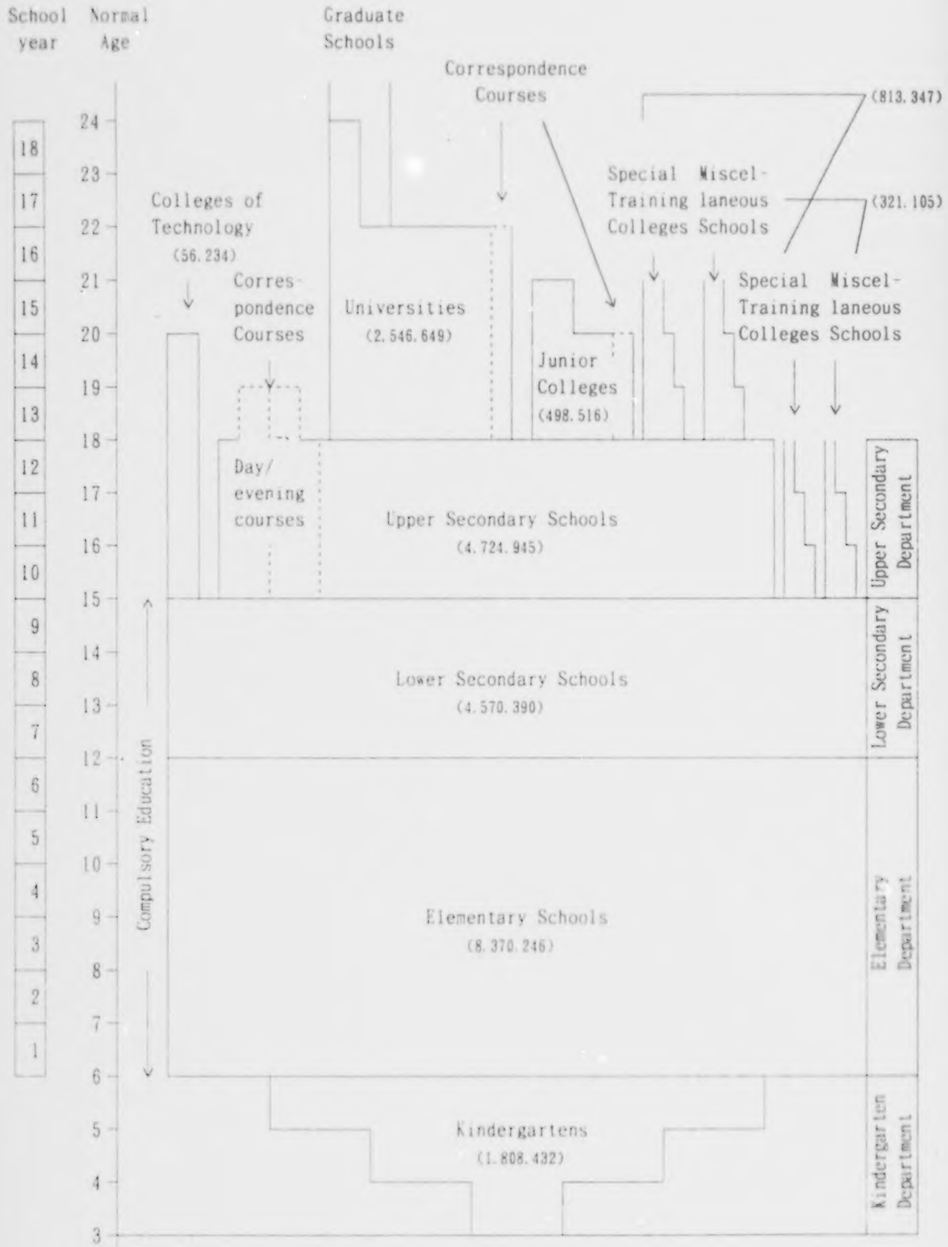
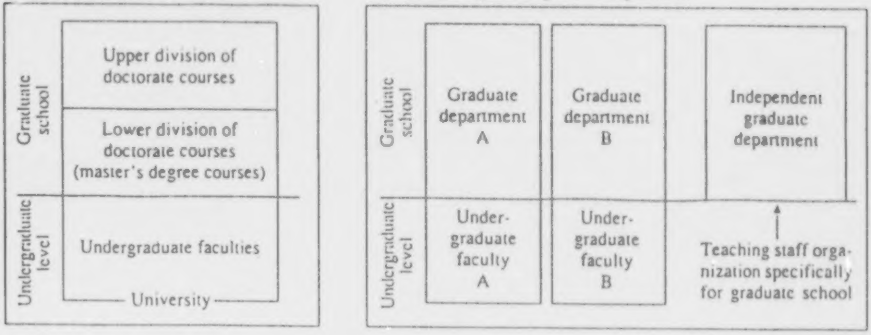
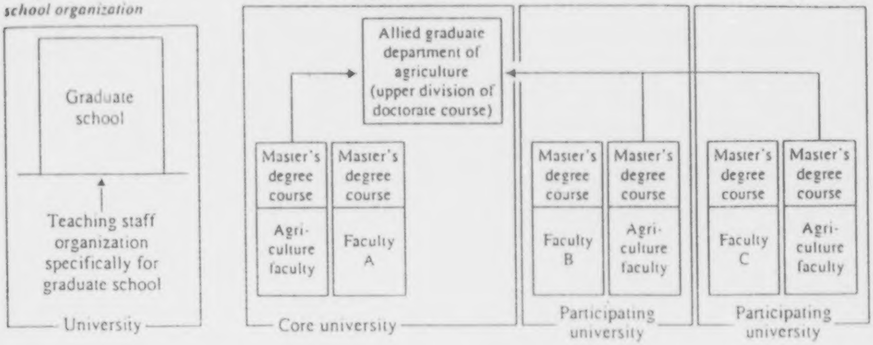

School year
Normal Age
18
17
16
15
14
13
12
11
10
9
8
7
6
5
4
3
2
1
24
23
22
21
20
19
18
17
16
15
14
13
12
11
10
9
8
7
6
5
4
3
Graduate Schools
Correspondence Courses
(813.347)
Special Training Colleges
Miscellaneous Schools
(321.105)
Colleges of Technology
(56.234)
Correspondence Courses
Universities
(2.546.649)
Junior Colleges
(498.516)
Special Training Colleges
Miscellaneous Schools
Day/evening courses
Upper Secondary Schools
(4.724.945)
Lower Secondary Schools
(4.570.390)
Compulsory Education
Elementary Schools
(8.370.246)
Kindergartens
(1.808.432)
Upper Secondary Department
Lower Secondary Department
Elementary Department
Kindergarten Department

Figure 2.14. Diverse Graduate School Formats


Traditional graduate school organization

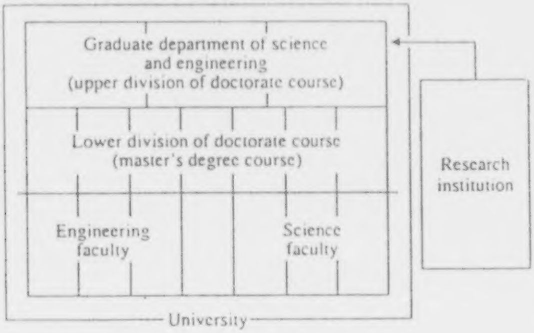
Example of independent graduate department

Graduate school
Upper division of doctorate courses
Lower division of doctorate courses (master's degree courses)
Undergraduate level
Undergraduate faculties
University
Graduate school
Graduate department A
Graduate department B
Independent graduate department
Undergraduate level
Undergraduate faculty A
Undergraduate faculty B
Teaching staff organization specifically for graduate school


Independent graduate school organization

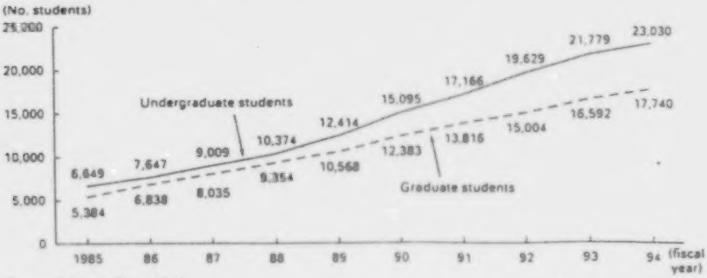
Example of allied graduate school

Graduate school
Teaching staff organization specifically for graduate school
University
Allied graduate department of agriculture (upper division of doctorate course)
Master's degree course
Agriculture faculty
Master's degree course
Faculty A
Core university
Master's degree course
Faculty B
Master's degree course
Agriculture faculty
Participating university
Master's degree course
Faculty C
Master's degree course
Agriculture faculty
Participating university


Example of linked graduate school

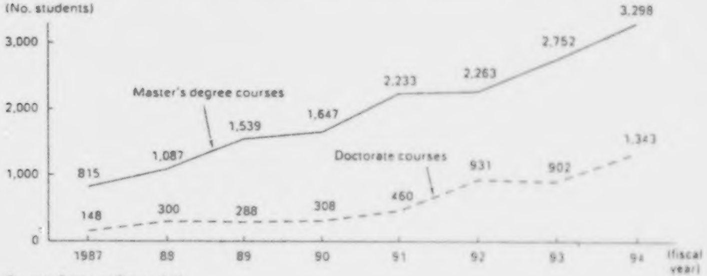
Graduate department of science and engineering (upper division of doctorate course)
Lower division of doctorate course (master's degree course)
Engineering faculty
Science faculty
Research institution
University

Figure 2.17. Trends in Undergraduate and Graduate Students from Abroad (May 1)



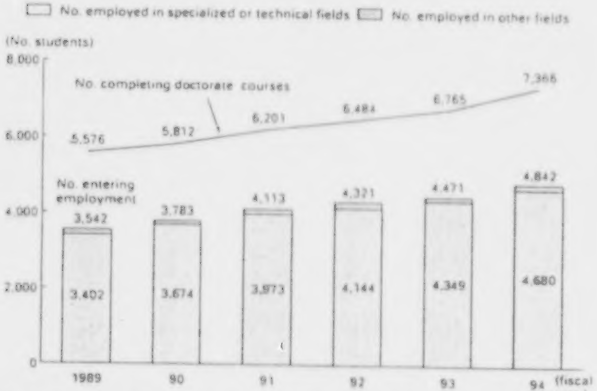
Source: Same as Figure 2.15.

Figure 2.18. Trends in Adult Admissions to Graduate Schools (as of May 1)



Source: Same as Figure 2.15.

Figure 2.20. Trends in Students Completing Doctorate Courses at National, Local Public, and Private Graduate Schools



Note 1: The number completing doctorate courses refers to students completing courses in March each year.

Note 2: The number entering employment includes people undertaking further education while employed.

Source: Same as Figure 2.19.

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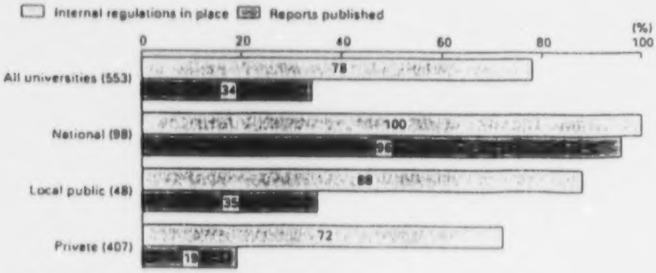
Figure 2.27. Implementation of Self-Monitoring and Self-Evaluation in Universities (September 1994)



Note: "All universities" includes the University of the Air.

Source: MESSC survey.

Figure 3.1. Breakdown of the Special Account for National Educational Institutions (Fiscal 1995)

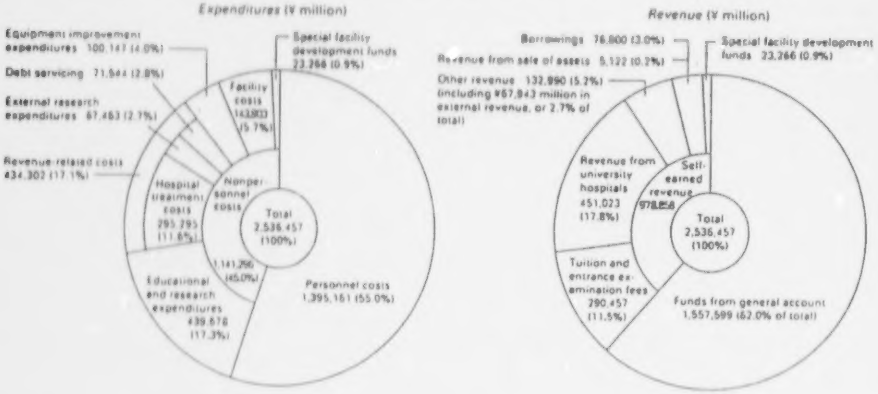


Figure 3.6. Trends in the Budget for the Improvement of Facilities in National Educational Institutions

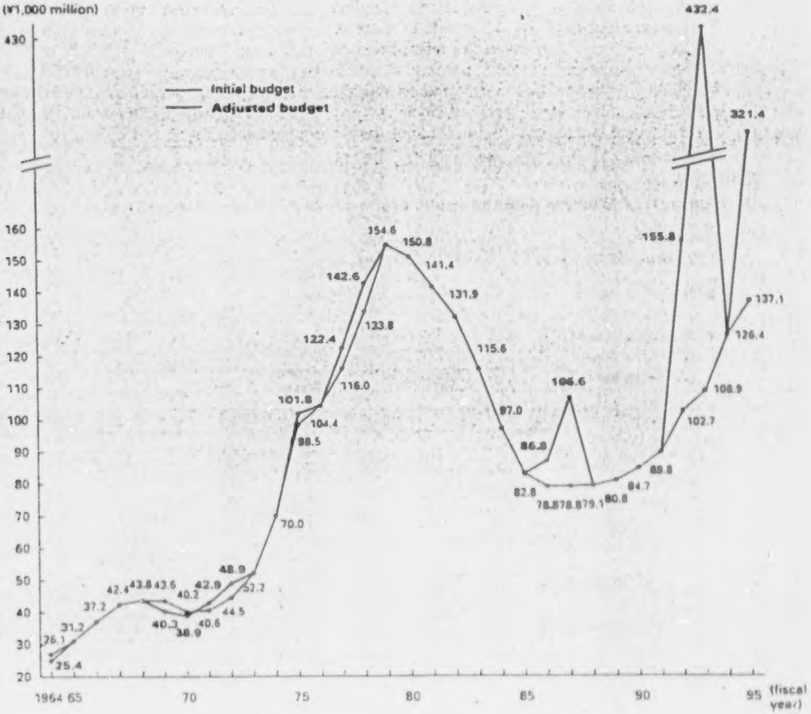


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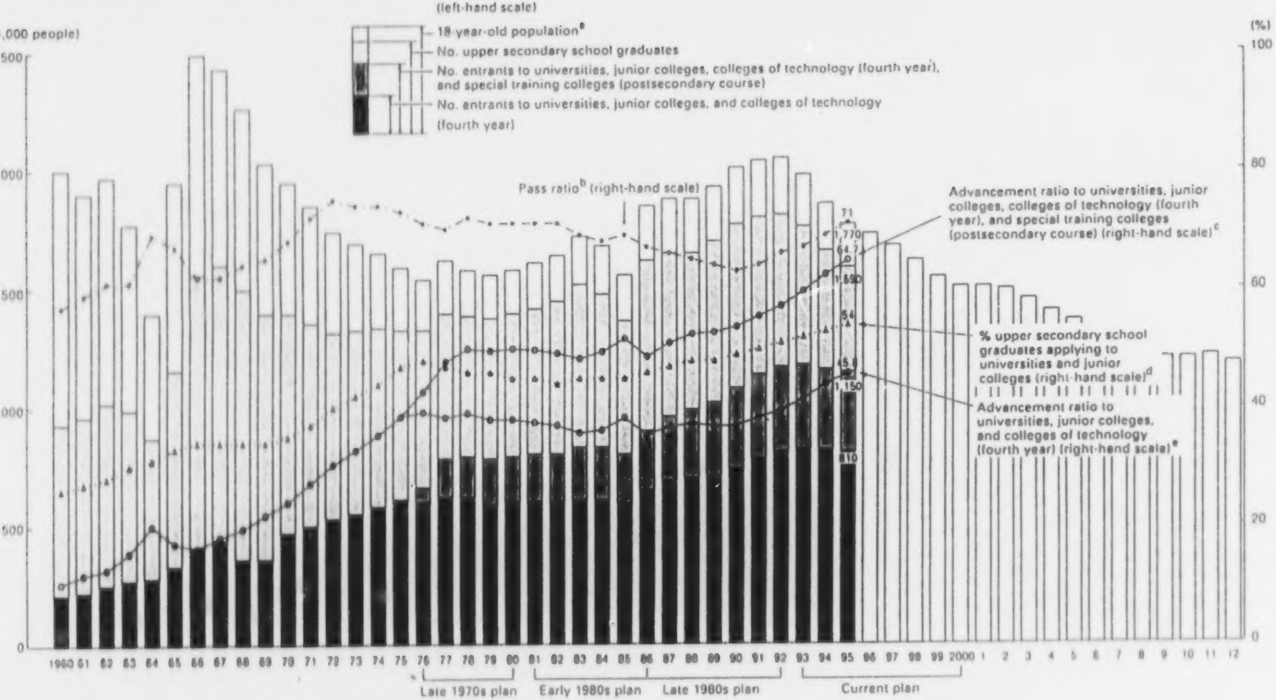
Figure 4.1. Trends in Access to Higher Education



a: No. lower secondary school graduates three years earlier

b: [No. entrants to universities and junior colleges (including graduates from earlier years)] ÷ [Total no. applicants (including graduates from earlier years)] × 100

c: [No. entrants to universities, junior colleges, colleges of technology (fourth year), and special training colleges (postsecondary course)] ÷ [No. lower secondary school graduates three years earlier] × 100

d: [No. upper secondary school graduates applying to universities and junior colleges] ÷ [Total no. upper secondary school graduates] × 100

e: [No. entrants to universities, junior colleges, and colleges of technology (fourth year)] ÷ [No. lower secondary school graduates three years earlier] × 100

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Trends in Higher Education from Massification to Post-Massification*

Patricia J. Gumport
Stanford University
Maria Iannozzi, Susan Shaman and Robert Zemsky
University of Pennsylvania

The rapid expansion of American higher education in the years following the Second World War is an often-told and well-documented story. In this report on the changing condition of higher education in the United States, we will be covering some familiar ground, as well as drawing on the framework established by Professor Arimoto in launching this seminar and extended by Professor Zemsky in his keynote address. What makes this report different – and indeed what gives this seminar its importance – is Professor Arimoto's proposition that national systems of higher education have evolved similarly, moving from massification to maturation and, now, to post-massification. We have organized our report on the evolution of the U.S. system according to this organizing framework.

The Era of Massification

Prior to World War II, only a small minority of the U.S. population – most of whom were male and white – continued schooling after high school. The initial expansion of American higher education came immediately following World War II, and again after the Korean War, when returning soldiers were offered financial assistance from the federal government under the GI Bill of Rights. Designed to ameliorate the labor market crunch that would otherwise have been created by the large number of returning soldiers, the GI Bill extended access to higher education to veterans and their families. The 1950s also saw an expansion of the middle class, increasing family wealth, and the rapid development of suburban areas. For these families, a college education became a ticket to social and economic mobility, and the children of the middle-class began enrolling in higher education in increasing numbers.

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*Paper presented as a Country Report, U. S. A.

Building on the advances made in the 1950s, American higher education showed a period of unprecedented growth — often characterized by the term "massification" — during the decade of the 1960s and through the mid-1970s. Upward social and economic mobility and overall national economic growth continued, causing a general increase in demand for higher education. Social and political changes, such as the Civil Rights and Women's Rights Movements and expanded federal financial aid, opened access to higher education for underrepresented populations — more women, more minorities, more part-time and intermittent learners, and more students well past the traditional ages of college attendance. Expansion in enrollment also led to a sharp increase in the number of institutions, as well as a fundamentally different mix of institutions, as the diverse needs of students became reflected in the programmatic and institutional structures of the system. Finally, the infusion of federal dollars to fund academic research (especially in the sciences and medicine) fostered an increase in the production of Ph. D. s, as well as a proliferation of the numbers and types of professional personnel who staffed on-campus research institutes and increasingly complex administrative services.

Let us turn now to examine trends in several dimensions of American higher education's expansion — the evidence of massification: changes in enrollment, changing student demographics, and institutional shifts.

Increasing Demand and Expanding Enrollment

By 1961, the initial period of growth occasioned by the GI Bill and the developing American middle class had doubled the enrollment of full- and part-time undergraduates (Figure 1), although the actual number of higher education institutions had not yet increased dramatically. Instead, institutions began expanding their capacity and programs to meet the increased enrollment demand. Over the 1960s, enrollment doubled once again, and, by the mid-1970s, the college population had increased to five times its size in 1951. It is interesting to note that, between 1964 and 1965 — and, again, between 1973 and 1974 — there was a sharp gain in college enrollments, indicating that young Americans matriculated as an alternative to economic employment or military service in the Vietnam War.

Figure 1 Enrollment in Higher Education: 1950 to 1991

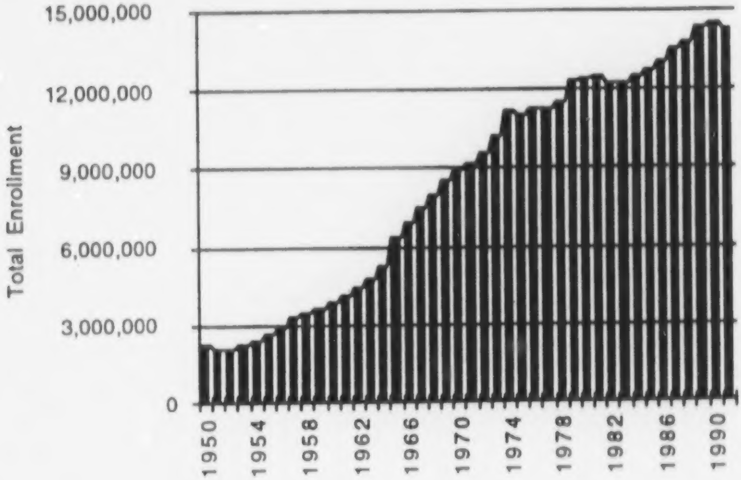
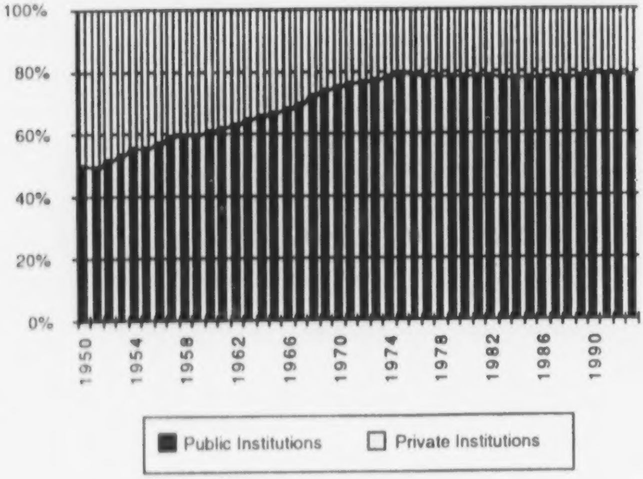


Figure 2 Enrollment in Higher Education by Institutional Control: 1950 to 1993



Although fewer in number than private institutions, public colleges and universities proved to have a greater capacity to meet the demands of these increasing enrollments. The often larger comprehensive and doctoral-granting research universities, as well as two-year community colleges, experienced the greatest gains in enrollment during this era of accelerated growth. From 1960 to 1975, the share of students enrolled in public colleges and universities grew by 20 percentage points (Figure 2).

The New American Student

In the early days of the 1960s, the American post-secondary student was most often still white, male, and between the ages of 18 and 22. Over the course of the 1960s, however, the demographics of American higher education's students would begin to change. Much of the increase in college enrollment and in the diversity of higher education's students was fostered by historic changes in institutional and federal policies. Colleges and universities began expanding their own financial aid programs, and formerly "exclusive" institutions also began opening their doors to a wider range of student populations. For example, beginning in the 1960s and extending into the mid-1970s, many formerly all-male schools began to admit female students.

Perhaps the most significant change that fostered increasingly diverse student enrollment was the expansion of federal student financial aid programs throughout the 1960s and early 1970s. The federal government expanded access to higher education by offering direct grants to low-income students based on economic need; it also began dispensing grant funds directly to colleges and universities for redistribution to targeted populations of students in the form of financial aid. For example, a federal college work-study program enabled students to gain employment on their campuses; their wages were paid primarily by federal funds, although institutions did provide a small percentage of matching dollars. Finally, a low-interest loan program subsidized by the federal government made borrowing to finance a higher education attractive for many students — particularly since the "return" on a college education promised wages that far outweighed any debt incurred. The annual salaries of male college graduates rose steadily after 1950 and reached a peak at $45,000 in 1970 — after which they began to decline.

Supported by a growing Women's Rights Movement and by changing notions of the role of women in society, female students began enrolling in higher education at an increasing rate during this period. An examination of enrollment by gender reveals that women began entering higher education at an accelerated rate beginning in the mid-1960s (Figure 3). By the close of the era of massification in the mid-1970s, the participation of female students in higher education equaled that of males.

The Civil Rights Movement of the late 1960s marked a period in which racial

Figure 3 Enrollment in Higher Education by Gender: 1950 to 1991

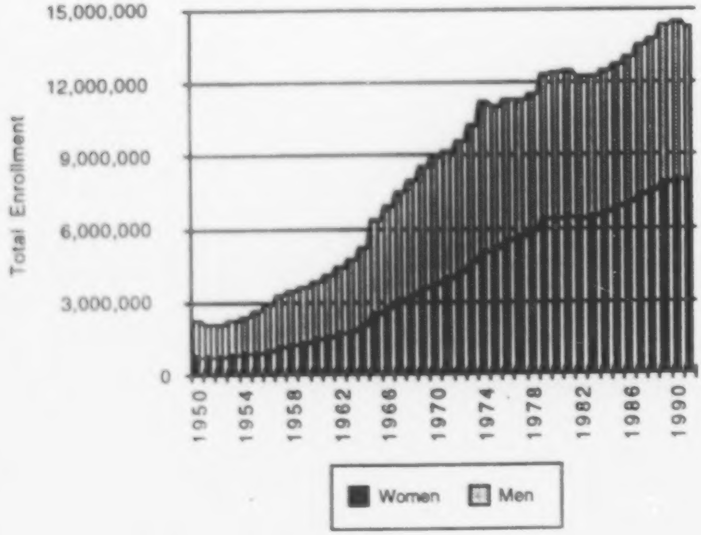
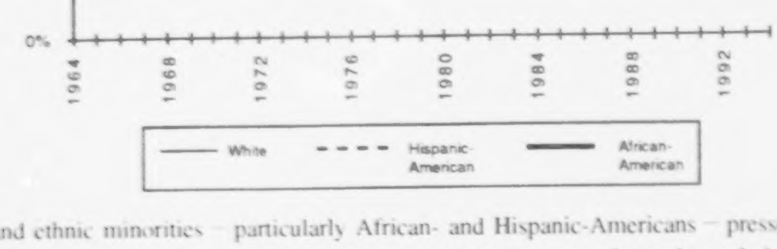


Figure 4 Enrollment of 18-to-24 Year Olds in Higher Education by Ethnic Group



and ethnic minorities – particularly African- and Hispanic-Americans – pressed for and gained access to institutions from which they were formerly excluded, either by law or by practice. The percentage of African-Americans aged 18 to 24 attending college more than doubled from under 10 percent to 20 percent between

Figure 5 Total Enrollment in Higher Education by Age: 1970 to 1990

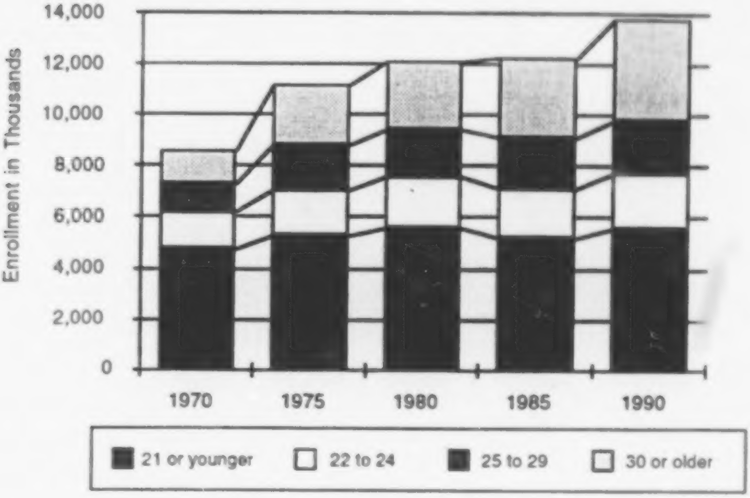
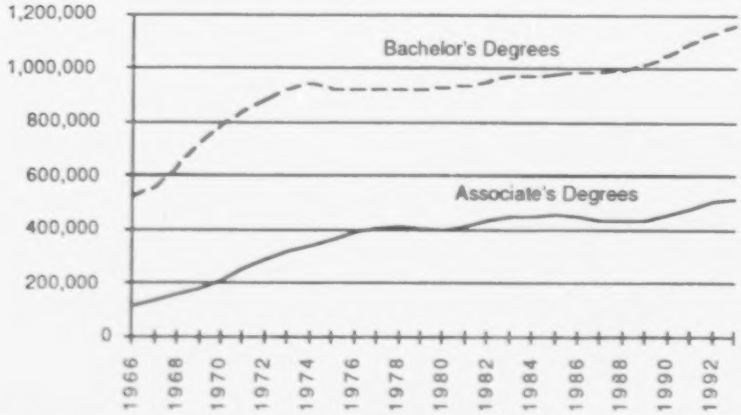


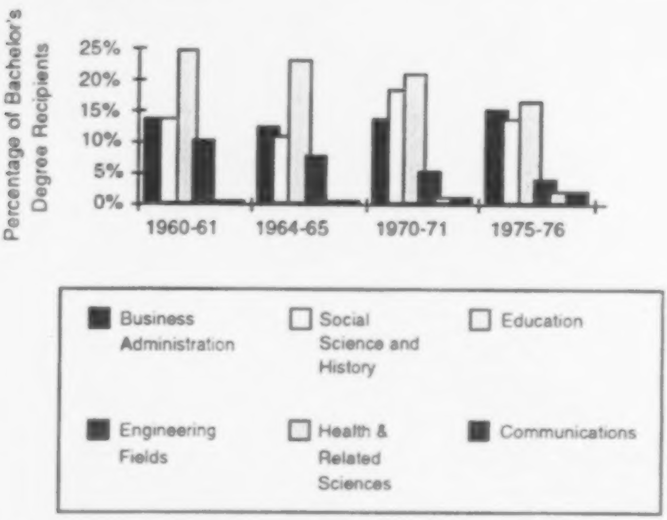
Figure 6 Number of Two-Year and Four-Year Degrees Awarded



1964 and 1972 (Figure 4). As the era of massification came to a close in 1976, just over 20 percent of the African-American population was enrolled in higher education. The participation of 18- to 24-year-old Hispanic-Americans also increased significantly. By 1975, almost 20 percent of this population was enrolled in higher education.

Older students also began enrolling in increasing numbers, although, until

Figure 7 Distribution of the Top Six Majors as a Percentage of Degrees Awarded: 1960-61 to 1975-76



1975, the majority of the college-going population was still of traditional-age (Figure 5). Between 1970 and 1975, these older matriculants began to make gains, as the number of students aged 22 or older increased by more than 50 percent, while the number of traditional-age students remained relatively constant.

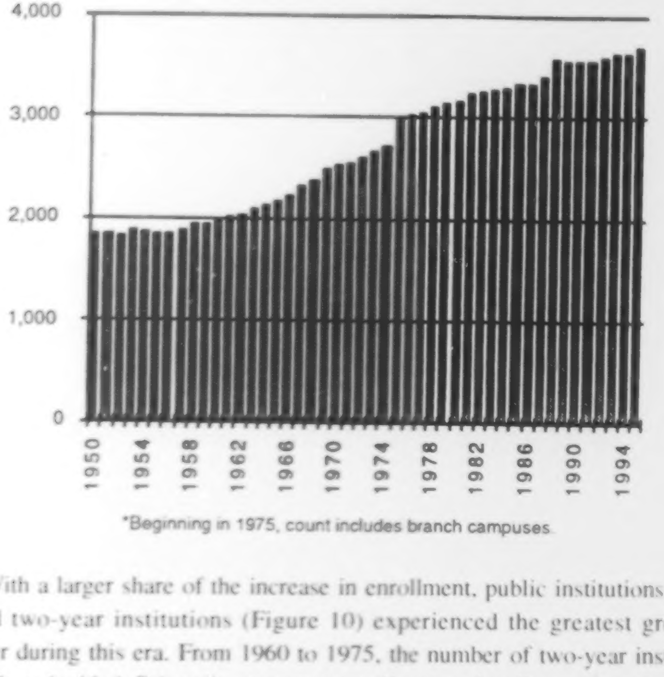
Corresponding to these enrollment shifts was an increase in the production of both associate's and bachelor's degrees. As noted in Figure 6, between 1966 and 1976, the number of associate's degrees awarded more than tripled, from 111,607 to 391,454. During the same time period, the number of bachelor's degrees conferred almost doubled, from 520,115 in 1966 to 925,746 in 1976.

It is also during this era that students' choices regarding their fields of study began to shift – serving as early signs of what would later become the "professionalization" of higher education that is evident in the current post-massification stage. Figure 7 shows how from 1960-61 to 1975-76 the percentage of undergraduate degrees granted in business administration, health and related sciences, and communications degrees began to grow. It is interesting to note that, at the same time, education degrees declined as a percentage of all bachelor's degrees awarded.

The Expanding Number, Size, and Types of Institutions

The expansion of capacity on already-established campuses was insufficient to meet the requirements of increasing demand, and the number of higher education institutions began to rise dramatically during this era. The largest period of growth occurred between 1960 and 1970, when 521 new institutions were founded (Figure 8). By the mid-1970s — the end of the era of massification — the total number of colleges and universities had grown by more than 50 percent.

Figure 8 Number of Colleges and Universities: 1950 to 1995*

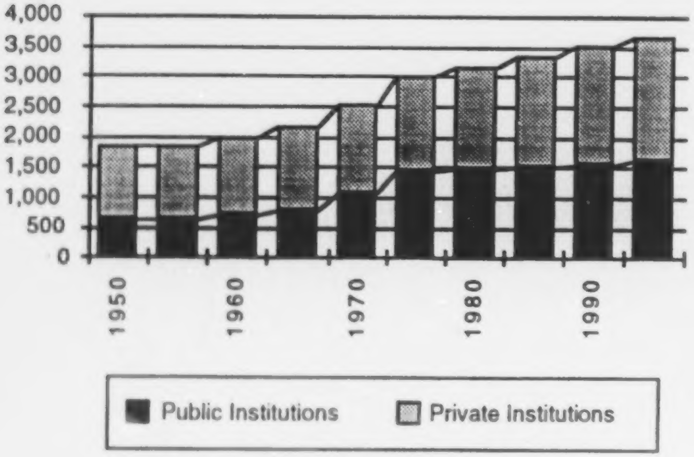


*Beginning in 1975, count includes branch campuses.

With a larger share of the increase in enrollment, public institutions (Figure 9) and two-year institutions (Figure 10) experienced the greatest growth in number during this era. From 1960 to 1975, the number of two-year institutions more than doubled. Primarily community colleges or locally supported colleges, these institutions were able to serve the needs of the changing college-going population, particularly of commuting students, who began to attend school part-time, and of students who sought special training and certification, associate's degrees, or the first two years of courses in preparation for the bachelor's degree. More affordable and less selective regarding access, these institutions also offered more flexible schedules and provided remedial education.

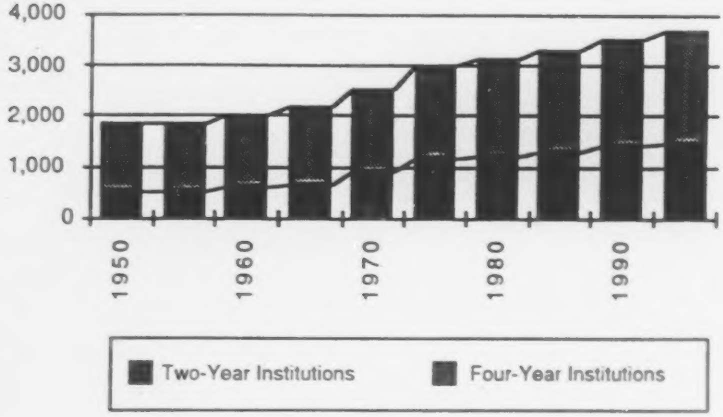
As the numbers of institutions increased, so did the demand for faculty. In only 15 years, the total number of full- and part-time faculty employed in American colleges and universities almost tripled from 236,000 in 1960 to 628,000 in 1975 (Figure 11). Institutions also began employing an increasing

Figure 9 **Number of Higher Education Institutions by Control: 1950 to 1995***



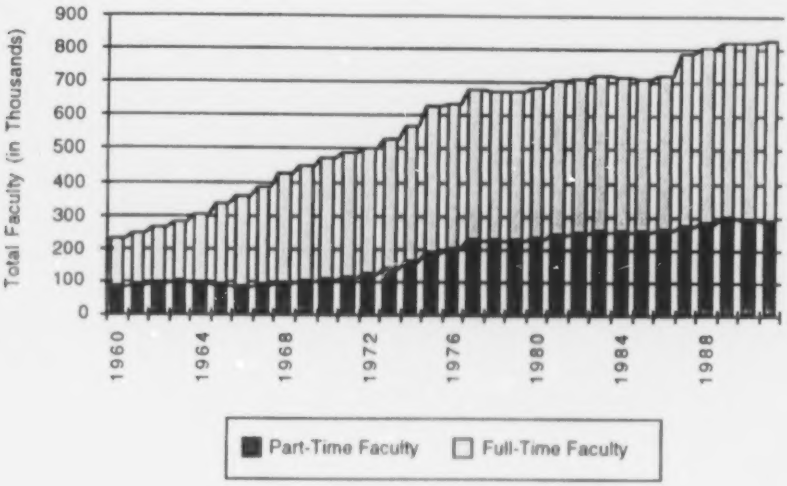
*Beginning in 1975, counts include branch campuses

Figure 10 **Number of Two-Year and Four-Year Higher Education Institutions: 1950 to 1995***



*Beginning in 1975, count includes branch campuses.

Figure 11 Number of Faculty in Higher Education by Full-time and Part-Time Status: 1960-1991



number of faculty on a part-time basis. The growth is steepest between 1970 and 1977, which marks the end of the era of massification, and the beginning of American higher education's "maturation" stage.

Driven by increasing enrollments of students with diverse needs, it was during this period that the shape of institutions began to change dramatically. In fact, for the first time in American higher education's history, it was necessary to construct a taxonomy that described the varying range of emerging institutional types. In 1970, the Carnegie Foundation began tracking these institutions according to its newly developed classification system. Figure 12 demonstrates how, between 1970 and 1976, the types of institutions were expanded to reflect this increasing diversity. Master's-granting institutions, associates of arts colleges, as well as professional schools and specialized institutions saw the largest increases during this period, while traditional, baccalaureate-granting institutions actually decreased in number.

Not surprisingly, at the same time, this increase prompted the expansion of more formalized structures for statewide coordination of higher education, an arrangement into which institutions voluntarily entered in an effort to discuss planning and resource allocation at the state level. For example, states such as

Figure 12 Number of Institutions by Carnegie Classification 1970 vs. 1976

SCHOOL TYPE (CARNEGIE CLASSIFICATION)	1970	1976
Doctoral-Granting Institution	**173**	**184**
Research University I	52	51
Research University II	40	47
Doctoral University I	53	56
Doctoral University II	28	30
Master's-Granting Institution	**456**	**594**
Master's (Comprehensive) Universities and Colleges I	323	381
Master's (Comprehensive) Universities and Colleges II	133	213
Baccalaureate-Granting Institution	**721**	**583**
Baccalaureate (Liberal Arts) Colleges I	146	123
Baccalaureate (Liberal Arts) Colleges II	575	460
Associate of Arts Colleges	**1063**	**1146**
Professional Schools & Specialized Institutions	**424**	**559**
Tribal Colleges	**n/a**	**n/a**
Total (All Categories):	2837	3066

California began to develop elaborate public education structures that included flagship research universities, comprehensive institutions, and two-year community colleges. The California master plan – a remarkably coherent vision of higher education – was enacted in 1960 to provide both increased access and quality. As originally conceived, there were to be three distinct layers of public institutions – community colleges, state colleges, and university campuses – each stratum with a specific mission in programs and degrees offered and service to a particular academic segment of the college-going population. An integral part of the Master Plan was its generous scholarship program to assist residents choosing to enroll in a private institution within the state. To ensure full access, the cost to the student was kept purposefully low.

Federal Research Support

Expanded federal research support in the 1960s and early 1970s to meet the needs of the Cold War and to pursue a competitive space exploration program prompted the rapid growth of graduate enrollments, Ph.D. production, and an expanded resource base for the research university. Figure 13 tracks the steady growth in federal research support, in constant dollars, to higher education institutions from 1965 to 1975. Universities were becoming major performers of federal research, and these funds were used to support the preparation of doctoral

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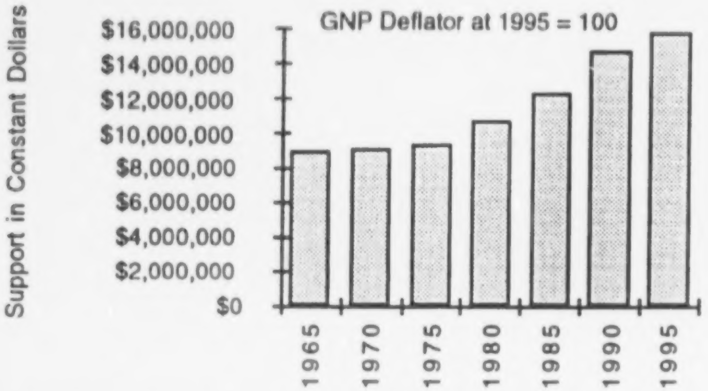
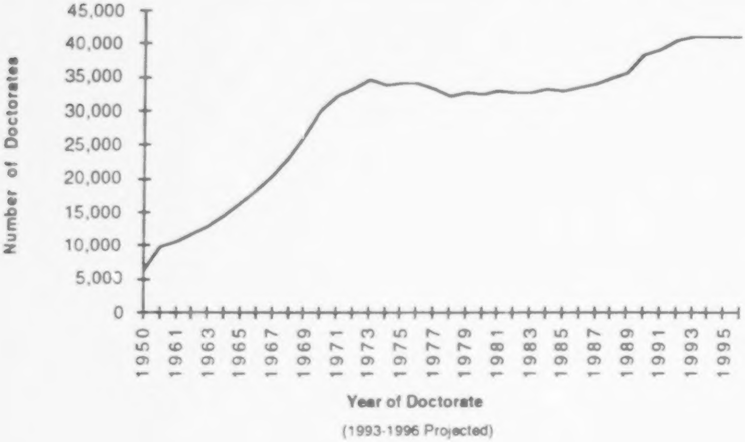
Figure 13 Federal Research Support in Constant Dollars: 1965 to 1995



students who would later populate growing faculty ranks throughout the 1960s and 1970s. Figure 14 demonstrates the dramatic increase in Ph.D. production from 1950 to 1973 — a more than five-fold increase from approximately 6,000 to just over 34,000 conferred doctoral degrees. The availability of these funds also enabled universities to expand their services, implement new academic programs, fund research institutes, and expand the facilities and physical plant of campuses.

To summarize, in the United States, the era of massification in higher

Figure 14 Doctoral Degrees Conferred: 1950 to 1996



education was essentially a process of replacing private purchase with widespread public opportunity – massification both resulted in and was the product of the "publicization" of the higher education system itself. In other words, it represented a movement away from the notion of education for an "elite" group of American youth to education for the masses, providing for the near-universal access that has earned American higher education this reputation. It was during this period that higher education began to be defined as a "public good" worthy of public support. As doors were opened to a more diverse student population, the demand for higher education increased dramatically. Unprecedented enrollment numbers not only fostered the growth in the number of institutions, but also created massive universities, particularly complex public systems. At the same time, enrollment increases were accompanied by an unprecedented rate of acceleration in resource acquisition (the infusion of federal financial aid and research funds), in output (degree production), and increasingly complex organizational structures.

The Era of Maturation

The rapid expansion of the American system of higher education in the 1960s and early 1970s was followed by a period of entrenchment – or "maturation" – of the gains made during this massification era. During the era of maturation, approximately 1975 to the late 1980s, higher education was still perceived as a "public good." With the momentum of preceding decades propelling its expansion, the system and many of its constituent parts would experience continuing growth, but did so at a less rapid rate. The most significant shifts during the maturation era would occur in the diversity of the student body, in the rates of part-time enrollment, and in the cost of college tuition – setting the stage for the trends that appear in the current, post-massification era.

Enrollment Shifts: Higher Education's New Majority

Throughout this period, students would continue to enroll in increasing numbers, as federal financial aid programs – especially new loan programs – facilitated expanded access. From 1975 to 1990, enrollment increased by almost 3,000,000 students; however, as shown in Figure 15, the rate of these enrollment gains began to flatten, particularly in 1989. In addition, the proportion of the nation's high school graduates attending college also rose steadily from approximately 50 to 60 percent (Figure 16).

Figure 15 Enrollment in Higher Education: 1950 to 1991

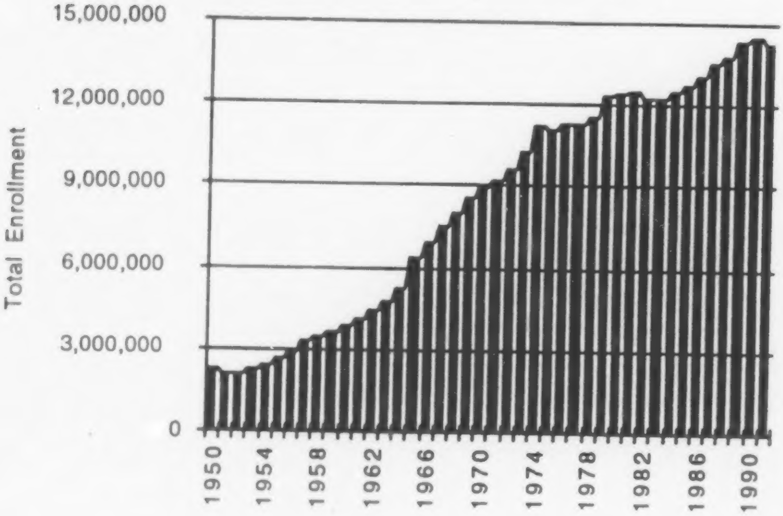
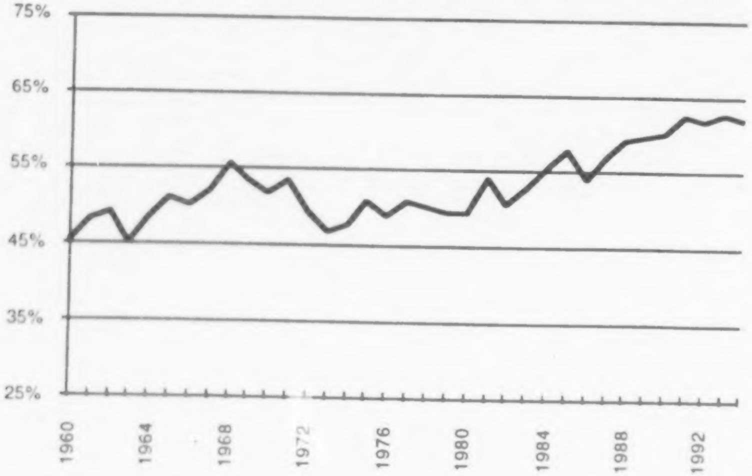


Figure 16 Rate of College Attendance Among High School Graduates: 1960 to 1994



The predominant change in enrollment during this period was not in the number of students attending college, but in their age. From 1975 to 1980, the largest increase in enrollment occurred among students over 30 years of age

Figure 17 Total Enrollment in Higher Education by age: 1970 to 1990

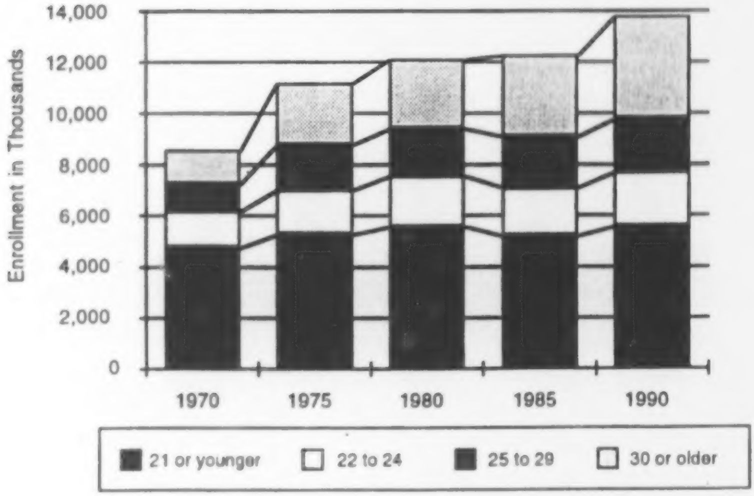
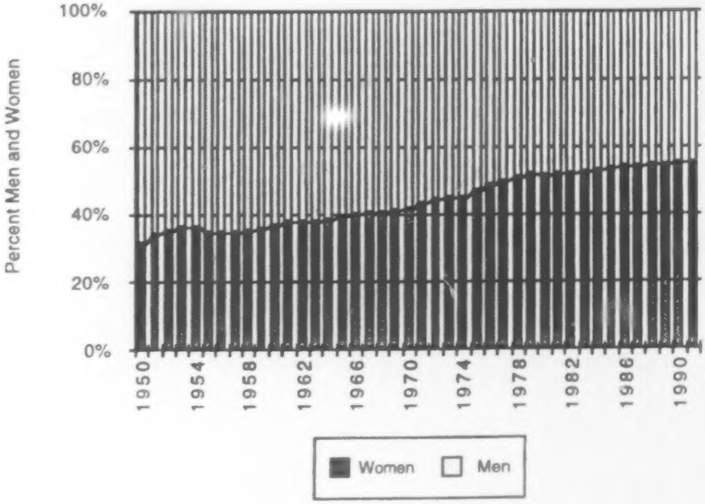


Figure 18 Change in Enrollment in Higher Education, Percentage by Gender: 1950-1991



(Figure 17). By 1990, the majority of higher education's students – its "new majority" – would be 22 years of age or older. No longer did white, traditional-

Figure 19 Numbers of Students Enrolled in Higher Education by Racial and Ethnic Group: 1976-1993

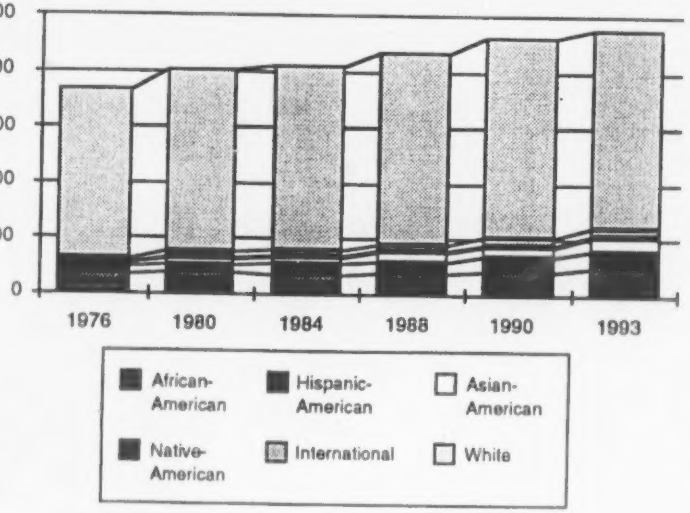


Figure 20 Full-Time and Part-Time Enrollment in Higher Education: 1960 to 1993

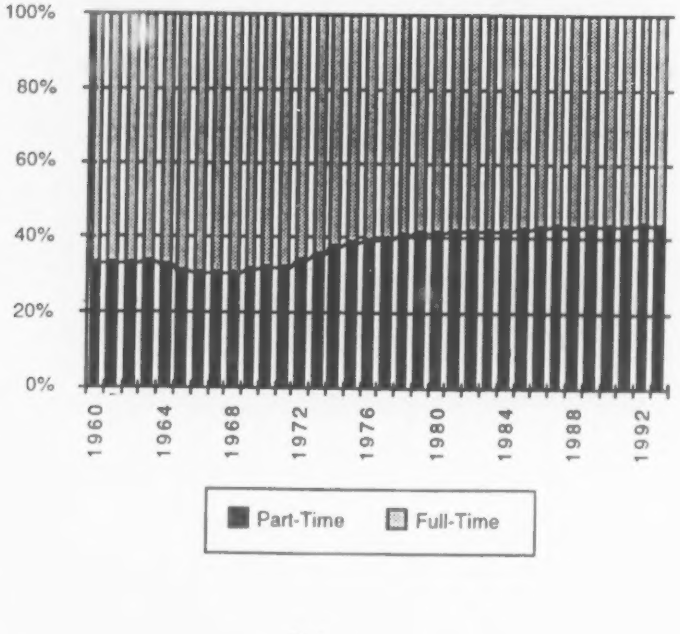
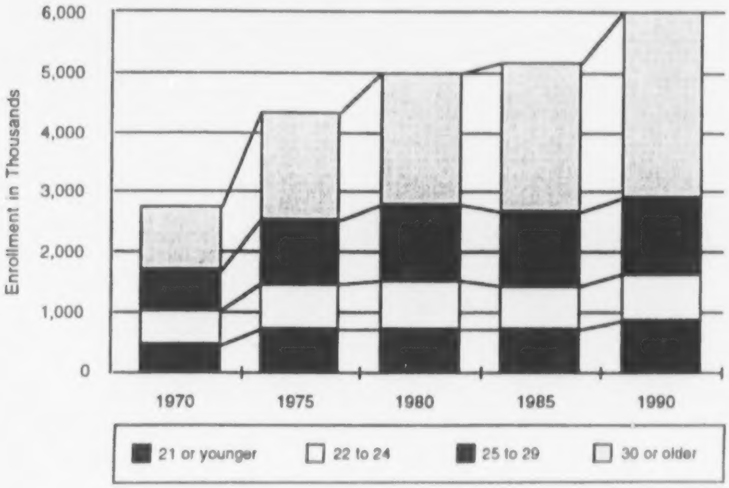


Figure 21 Part-Time Enrollment in Higher Education by age: 1970 to 1990



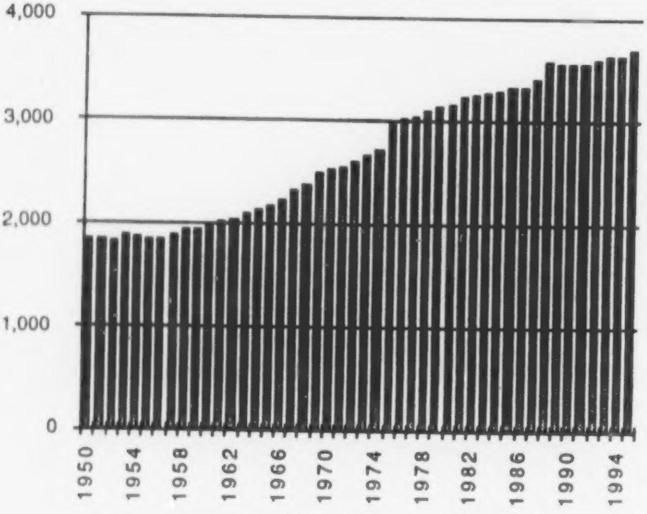
aged males comprise the largest proportion of students in higher education's classrooms. The new majority was not only older, it was increasingly diverse. With regard to gender, the number of women enrolled increased ten-fold, from 750,000 in 1950 to more than 7.5 million in 1991 – eclipsing the enrollment of male students and becoming the majority of matriculants in American higher education (Figure 18). Racial and ethnic minorities continued to make gains in participation during this period (Figure 19).

With the influx of higher education's new majority – older, and often working, students – also came a shift in attendance patterns. By 1990, more than 40 percent of American students were attending a college or university on a part-time basis (Figure 20), and most of these students belonged to higher education's new majority. Figure 21 shows how, since 1970, the greatest share of part-time students has been over the age of 22. The most dramatic growth in the number of part-time students occurred for those over age 30, with a more than 40 percent increase between 1980 and 1990. In fact, that age group accounts for nearly all of the growth in part-time attendance.

The Slowing Growth of Traditional Institutions

Although the number of institutions continued to increase during the era of maturation, the rate of increase in the number of institutions – like that of enrollment – began to flatten (Figure 22). There is a sharp spike in the number of

Figure 22 Number of Colleges and Universities: 1950 to 1995*



*Beginning in 1975, count includes branch campuses.

Figure 23 Number of Institutions by Carnegie Classification 1976 vs. 1987

SCHOOL TYPE (CARNEGIE CLASSIFICATION)	1976	1987
Doctoral-Granting Institution	**184**	**213**
Research University I	51	70
Research University II	47	34
Doctoral University I	56	51
Doctoral University II	30	58
Master's-Granting Institution	**594**	**595**
Master's (Comprehensive) Universities and Colleges I	381	424
Master's (Comprehensive) Universities and Colleges II	213	171
Baccalaureate-Granting Institution	**583**	**572**
Baccalaureate (Liberal Arts) Colleges I	123	142
Baccalaureate (Liberal Arts) Colleges II	460	430
Associate of Arts Colleges	**1146**	**1367**
Professional Schools & Specialized Institutions	**559**	**642**
Tribal Colleges	**n/a**	**n/a**
Total (All Categories):	3066	3389

institutions between 1974 and 1975, when branch campuses are included in the total count of colleges and universities, which reflects an artifact of data collection, not an increase in the number of branch campuses themselves. Another

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spike occurs between 1986 and 1987, after which the number of institutions remained relatively constant. The proliferation of traditional higher education institutions also began to slow during this period, although non-traditional colleges – such as two-year associate's-granting schools and professional and specialized schools – experienced a significant jump in number between 1976 and 1987 (Figure 23).

Increased Organizational Complexity

What continued to expand was the sheer size of institutions – in terms of their administrative staffs – as they added programs, student services, research institutes, and administrative units in an era of continued expansion. Figure 24 demonstrates how the number of non-faculty professionals, as well as instruction and research assistants, employed at colleges and universities more than doubled between 1976 and 1991.

A contributing factor to this administrative expansion was the dramatic increase in federal research support for American research universities between 1975 and 1995 (Figure 25). Federal research dollars during this period would

Figure 24 Growth of Professional Staff at Colleges and Universities: 1976 vs. 1991

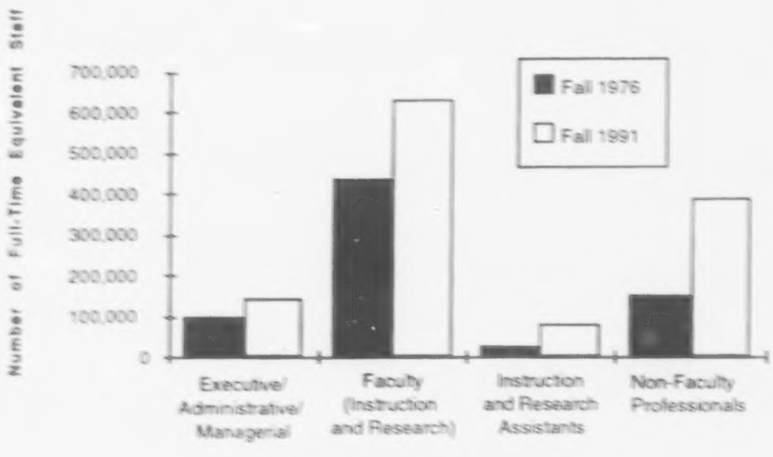


Figure 25 Federal Research Support in Constant Dollars: 1965 to 1995

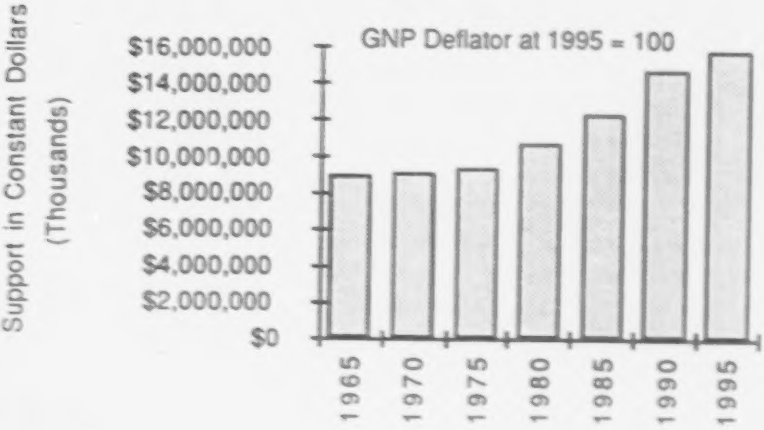
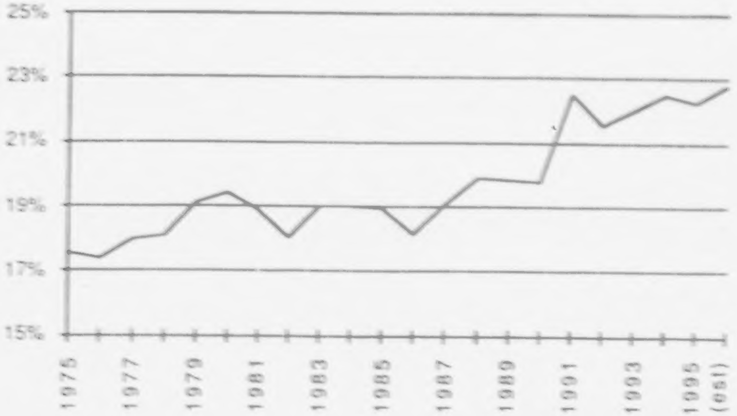


Figure 26 Percentage of Total Federal Research and Development Obligations Administered by Colleges and Universities



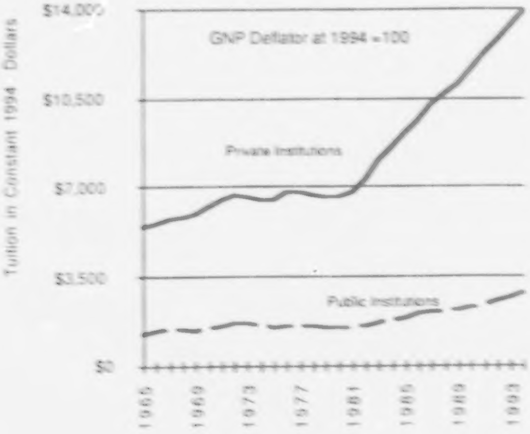
jump by almost 50 percent, further supporting the augmentation of existing institutions' programs and functions, particularly at research universities. More dramatic is the growth in higher education's percentage of all distributed federal research and development funds from 1975 to 1991 (Figure 26), from slightly over 17 to nearly 23 percent.

Harbingers of Change

Two trends appearing at the end of higher education's era of maturation would set the stage for its next phase of evolution, post-massification. First, the growth of part-time enrollment and the emergence of a new majority spawned a shift in student attitudes regarding the educational experience — which came to be less a rite-of-passage and more a consumer relationship. A study of new majority students at Indiana University in the early 1990s illustrates this point. Older and enrolled part-time, these individuals did not identify as "students," nor did they feel a strong attachment to their post-secondary institutions. They considered themselves to be "workers" or "homemakers" first — and students second or third. This shift in attitude demonstrates the departure from the identities of traditional-age students, who characterize themselves primarily as "students," even if they work while in school. It also contributed to the development of higher education's outlet market, as students have become shoppers who "buy" their higher education one course at a time, perhaps from a variety of institutions.

Second, the close of the maturation era also saw the beginning of an enduring — what would soon become a troubling — trend: the escalation of tuition rates at private institutions and the resulting reliance on the discounting of tuitions through student financial aid. As private institutions expanded — adding new programs, research functions, and administrative units — and as the economy began to experience rising inflation, tuitions at these colleges and universities

Figure 27 Tuition at Four-Year Public and Private Universities in Constant Dollars: 1965-1994



began to reflect the enormous cost of their operations. As shown in Figure 27, in the early days of expansion in 1965, the average tuition in constant dollars for a private university was $1,297 ($5,442 in constant 1994 dollars). Although private tuitions rose moderately throughout the 1960s and 1970s, they began to outpace inflation beginning in 1978. After 1982, a sharp tuition escalation is more than evident. By 1994, the average price would rise to reach $13,874; while the value of the dollar tripled from 1965 to 1994, tuitions rose ten-fold in private universities. Although tuition in public universities grew at a more even pace, it too began to increase rapidly in the late 1980s. By 1994, public tuitions had achieved the same ratio of increase as private institutions, becoming ten-fold the stated price in 1965, which was $298.

The Era of Post-Massification

The enormous, expensive, and elaborate systems of higher education that developed and matured from 1960 to the late-1980s were predicated on an ever-expanding resource base and little regulation from the public sphere. During the eras of massification and maturation, it was possible for colleges and universities to look inward and define the challenges confronting them in their own terms, but beginning in the late 1980s, the system's expansion became undercut by a growing set of external pressures.

Beginning in the late 1980s, there were visible signs of an erosion of support for American higher education, as it increasingly has become perceived as more of an individual good, rather than a public good. Students and parents have begun to question the value of higher education's expensive credentials, particularly as the return on – though not the necessity of – a college degree has eroded in the American job market. Economic retrenchment, the rise of market forces, and increased competition for declining public appropriations have also eroded the foundation upon which higher education has flourished in the decades after World War II. As a result, colleges and universities have begun to rethink the size, shape, mission, and financing of their enterprises. In a sense, just as massification signaled the "publicization" of American higher education, the process of post-massification may be signaling the "privatization" of the system. This shift is accompanied by increasingly vocal concerns over the viability of particular kinds of institutions and over the continued feasibility of access for all.

Data have yet to be collected that reveal the abrupt halt in American higher education's march toward expansion and the shattering of taken-for granted premises. However, a series of emerging crises indicate that the system is moving in the direction characterized by Professor Arimoto's postulates — in essence, a shift toward post-massification. This shift is indicated by increased public scrutiny and calls for accountability, the withdrawal of public support, price resistance and discounting, rising market pressures and competition, a shift toward vocationalism, and persistence problems related to the elongation of time-to-degree.

Increased Public Scrutiny and Calls for Accountability

Postsecondary education's lowered place in the queue for public funds may derive from a sense that the enterprise's costs are out of control and from a feeling that public institutions, like their private counterparts, have become not just expensive but wasteful in pursuit of their own, as opposed to the public's, agenda. A number of postsecondary education's political critics have come to assert that reduced public funding will not only make public universities more efficient (almost by definition), but more accountable for delivering access and quality education. While American colleges and universities still claim societal purpose, legislative critics in particular are concerned that, if left to their own devices, these institutions will continue to use public monies yet simultaneously insulate themselves from the rigors of public accountability. Throughout policy discussions, various stakeholders have begun to rethink taken-for-granted answers to a number of core questions about the premises of the American higher education enterprise. These questions include: To what extent should higher education institutions adapt to changing market demands? Should the state be an owner or a regulator of higher education institutions? And, what financing and operational practices of higher education will best service the public's interest?

Withdrawal of Public Support

A decline in government revenues that marks the beginning of this era reflects changes in budgetary priorities that occurred in state legislatures across the U.S. in the late 1980s and during the first half of this decade — the products of a political push to balance the federal budget and the resulting devolution of federal programs to state and local governments. Many states now find themselves facing structural deficits caused by Washington's mandate for medical-services spending — which collides with local decisions to increase spending for K-12 education, prisons, and aid to the elderly, and which simultaneously conflicts with a commitment to reduce taxes. In 1990, the medical-services program, Medicaid, first displaced higher education as the second largest category of state spending.

Figure 28 State Funding of Higher Education: 1986 to 1992

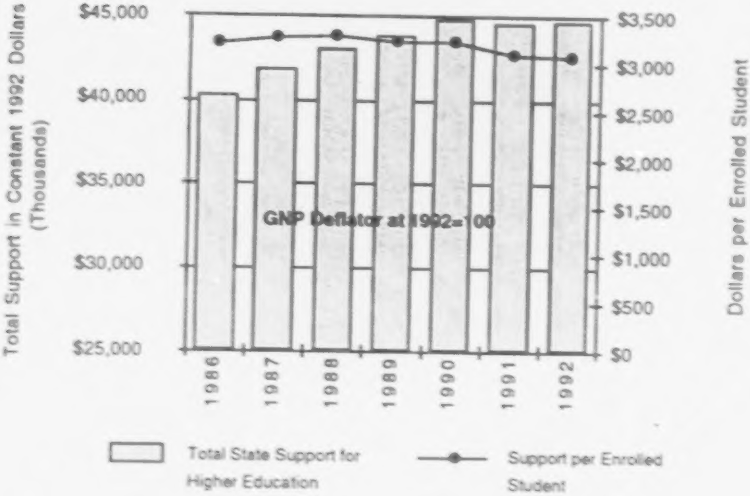
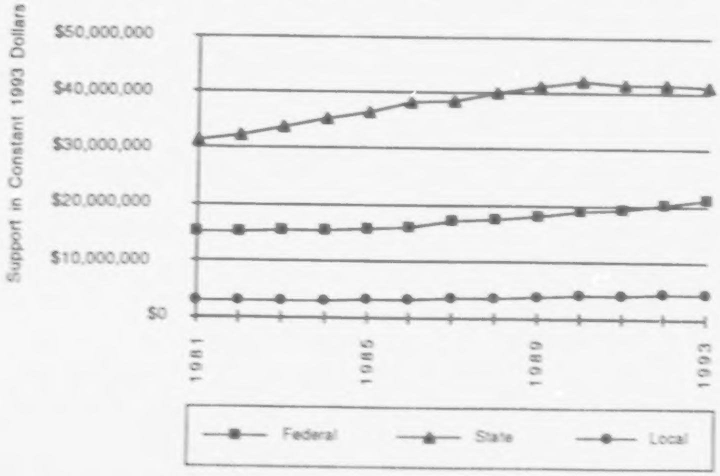


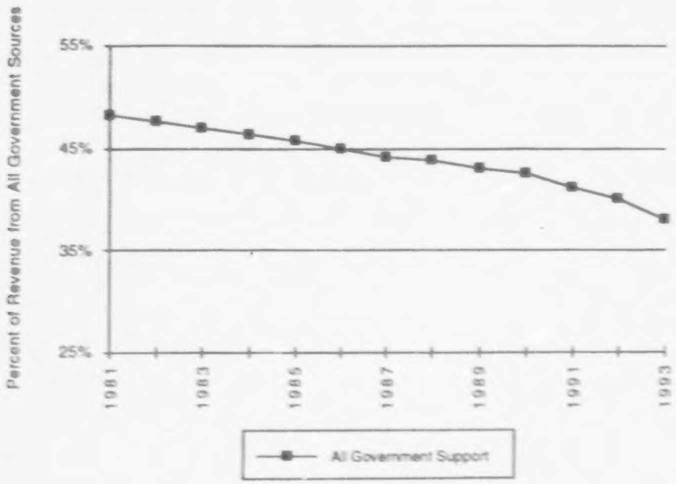
Figure 29 Government Support for Higher Education: 1981 to 1993



eclipsed only by elementary and secondary education.

The erosion of state funds, in particular, general fund appropriations, between 1986 and 1992 can be seen clearly in Figure 28. Although spending increased slightly over this period, the actual dollars allocated per enrolled student

Figure 30 **Government Funding as a Percentage of all Funding for Higher Education: 1981 to 1993**



have dropped – and should continue to drop as the 1990s draw to a close. From another perspective, state funding fell 8.8 percent between 1980 and 1993 for public institutions alone – the colleges, universities, and systems that enroll the majority of American students.

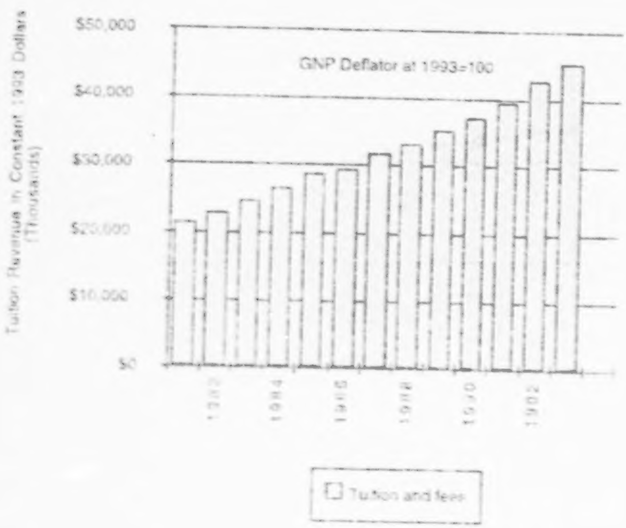
Although it has not declined significantly, direct local and federal support for higher education flattened between 1981 and 1993 (Figure 29). Overall, government funding as a percentage of all revenue sources for higher education declined between 1981 and 1993 by almost 10 percentage points (Figure 30).

Confronted with a steady decline in government support, most colleges and universities have offset their revenue losses by passing the costs on to students through dramatic tuition increases. Figure 31 reports the steep increase in revenues from tuition and fees from 1981 to 1993; by the end of that 12-year period, revenue from these sources had more than doubled.

Price Resistance and Discounting

The success of sustained tuition increases to fill the fiscal gap now promises to become self-defeating. Political resistance to these tuition hikes has increased as middle-income families express fears about college being priced out of reach. As a result, the past two years have witnessed only modest increases in public tuition levels in most states, and it is no longer politically feasible to impose

Figure 31 Tuition and Fee Revenues of Higher Education: 1981 to 1993

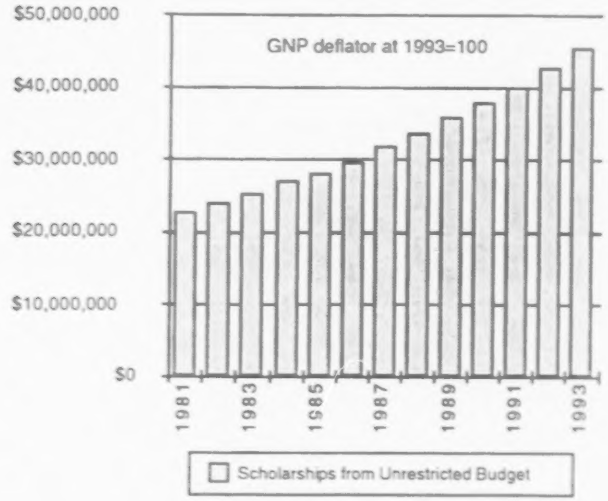


double-digit tuition increases, at least for in-state undergraduate students.

Of necessity, private colleges and universities have been subsidizing student financial aid by recycling tuition revenues – a practice that redistributes the tuition burden by supporting students of fewer means with the tuition dollars of those who pay the full price. In recent years, many four-year public institutions have come to operate increasingly like their private counterparts. Called "discounting," this practice has actually become one of the factors exerting upward pressure on tuition levels. Figure 32 demonstrates how expenditures for student financial aid from private institutions' unrestricted operating budgets increased from 1981 to 1993.

Much of the price resistance phenomenon has its foundations in the decreasing value of a college degree, described as the "price-earnings squeeze" by Professor Zemsky in his keynote address. Gone are the days of low cost and high return, replaced with the paradoxical sense that a college education, while increasingly necessary, is also less economically rewarding. Figure 33 provides a compelling explanation for the increased focus on cost that has come to dominate the public's scrutiny of American higher education. Not only have tuition increases exceeded the rate of inflation, but students and parents are being asked

Figure 32 Unrestricted Financial Aid Expenditures in Private Colleges and Universities: 1981 to 1993



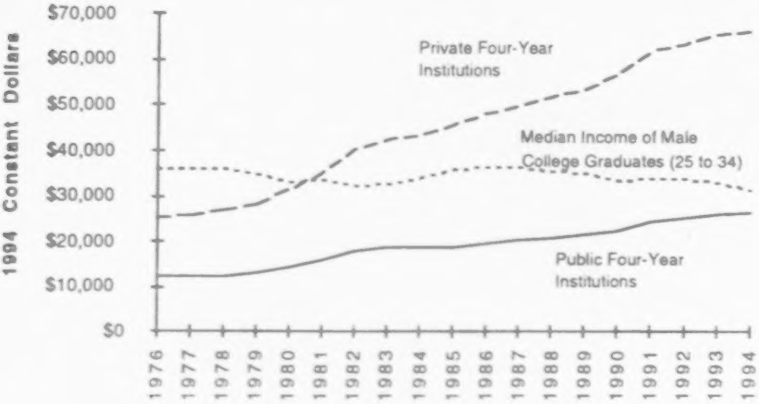
to pay more for less — in terms of likely earnings in relation to stated prices.

Increased Market Pressures and Vocationalism

Fiscal constraints and calls for accountability have been accompanied by emerging pressures from the market. Higher education has become increasingly consumer-driven, as students and parents offer resistance to tuition increases and demand greater accountability for the quality and cost-effectiveness of institutions. Other competitive forces — particularly from the for-profit sector and especially from the growing information-services industry — have further taxed traditional institutions, as outlet markets begin to emerge and higher education's near-monopoly in conferring training and education credentials breaks down.

In many ways, those who have best understood the changing nature of this educational market are the new, often proprietary, institutions that have emerged to challenge traditionally organized colleges and universities, as well as the nation's community colleges, which have always offered vocational education and training. Unfettered by the traditions of the academy, these specialized providers are proving that they can offer educational programs that satisfy a consumer movement increasingly concerned with attaining the credential that programs of postsecondary education are expected to provide. Just over the horizon is a second

Figure 33 College Costs* and Average incomes: 1976 to 1994 in Constant Dollars



*College costs include tuition, fees, room and board.

Figure 34 Number of Institutions by Carnegie Classification 1987 vs. 1994

SCHOOL TYPE (CARNEGIE CLASSIFICATION)	1987	1994
Doctoral-Granting Institution	**213**	**236**
Research University I	70	88
Research University II	34	37
Doctoral University I	51	52
Doctoral University II	58	59
Master's-Granting Institution	**595**	**532**
Master's (Comprehensive) Universities and Colleges I	424	439
Master's (Comprehensive) Universities and Colleges II	171	93
Baccalaureate-Granting Institution	**572**	**633**
Baccalaureate (Liberal Arts) Colleges I	142	163
Baccalaureate (Liberal Arts) Colleges II	430	470
Associate of Arts Colleges	**1367**	**1480**
Professional Schools & Specialized Institutions	**642**	**690**
Tribal Colleges	**n/a**	**29**
Total (All Categories):	3389	3600

wave of entrepreneurs ready to combine the educational and entertainment potential of electronic technologies, creating products and services to attract both younger and older learners who are accustomed to shopping for the services they seek.

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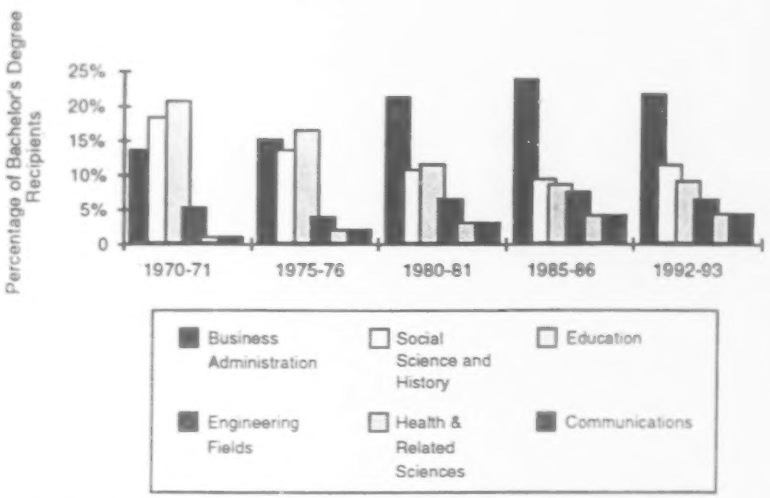
Figure 35 Distribution of the Top Six Majors in 1993 as a Percentage of Degrees Awarded: 1970-71 to 1992-93



The proliferation of these education outlets is evident in the growth in the number of institutions by their Carnegie classification (Figure 34) from 1987 to 1994. During the maturation era, when this trend first began to appear, associate's degree-granting as well as specialized and professional institutions experienced the greatest growth in number, and they continued to increase in the current era of post-massification. It is important to note here that – while the number of doctoral degree-granting institutions increased slightly, and master's degree-granting institutions actually declined – the number of baccalaureate institutions jumped. What this fact may reflect is the sheer necessity of a bachelor's degree to compete in the American labor market of the 1990s, as described by Professor Zemsky in his keynote address.

On a programmatic level, similar shifts are evident. Students continue to choose majors toward vocational and professional degrees, as they seek to ensure their own success in a turbulent labor market. Figure 35 demonstrates how, between 1970 and 1993, business administration degrees skyrocketed; and engineering, health and related sciences, and communications degrees increased significantly.

Persistence Problems and the Elongation of Time to Degree

In recent years, individual achievement goals have come to dominate the

Figure 36 Participation vs. Attainment (U.S.)

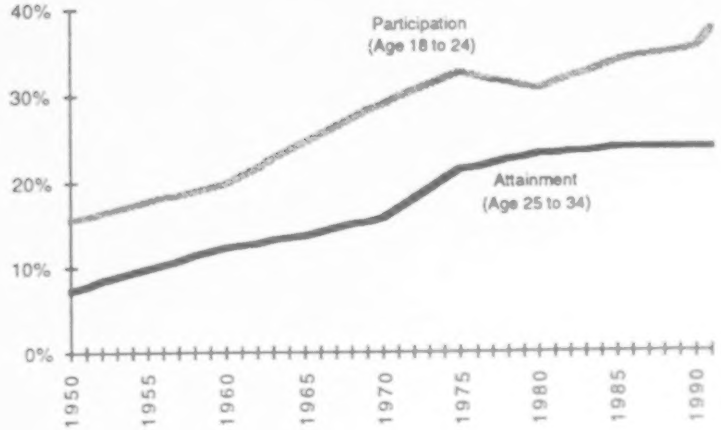
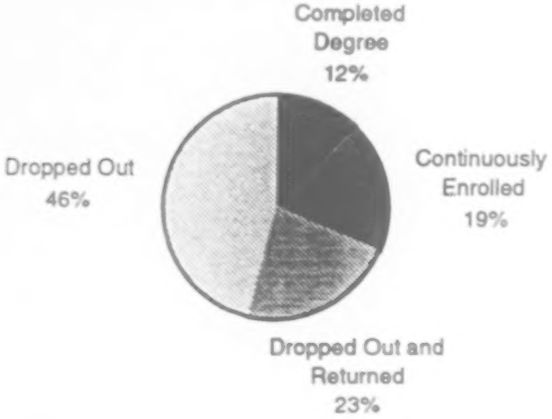


Figure 37 Persistence Patterns in the Spring of 1992 for Students Matriculating in Associate's Programs in the Fall of 1989



higher education policy arena, eclipsing social justice demands for providing widespread access. Problems with persistence and graduation have also become a concern in this new era — perhaps the result of an increase in outlet markets, a decrease in attachment to single institutions, and the inability of many students to finance their educations once they have begun. As Professor Zemsky pointed out in his keynote address, there is a widening gap between the rate of participation

Figure 38 Persistence Patterns in the Spring of 1992 for Students Matriculating in Bachelors' Programs in the Fall of 1989

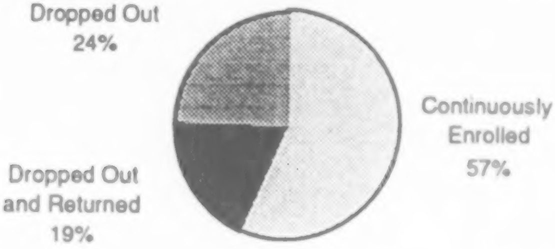
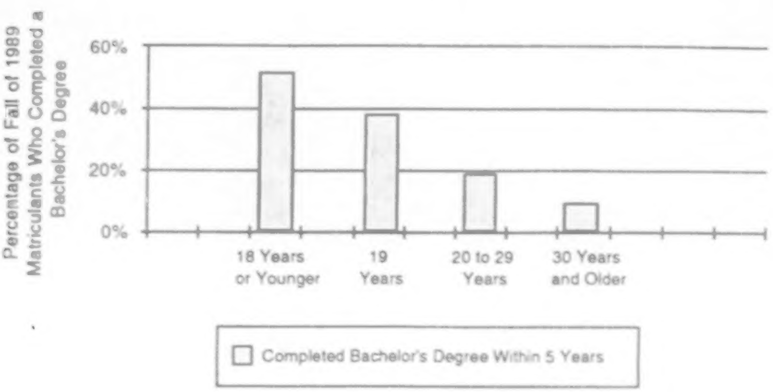


Figure 39 Bachelors' Degrees Completed in the Spring of 1994 by Age Student at Matriculation (Fall of 1989)

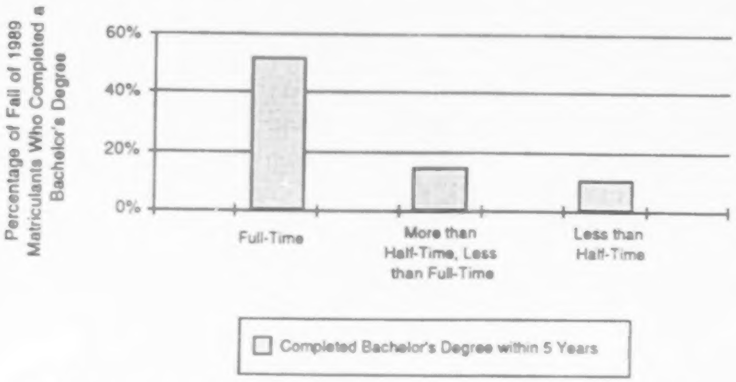


and degree attainment for American higher education students. As shown in Figure 36, currently, more than 40 percent of those who begin college fail to receive the baccalaureate degree.

Current data illustrate the pattern of declining completion rates for students who matriculated in the fall of 1989. Figure 37 shows that, of the students who began an associate's degree program in the fall of 1989, nearly half had dropped out by the spring of 1992, and 25 percent were attending only intermittently. A similar trend is observed for bachelor's programs in Figure 38. Of the students who matriculated in 1989, almost one-fourth had dropped out by the spring of 1992, and nearly 20 percent were attending only intermittently.

An explanation for this trend is made clear when the numbers are parsed by

Figure 40 Bachelors' Degrees Completed in the Spring of 1994 by Attendance Status of Student at Matriculation (Fall of 1989)

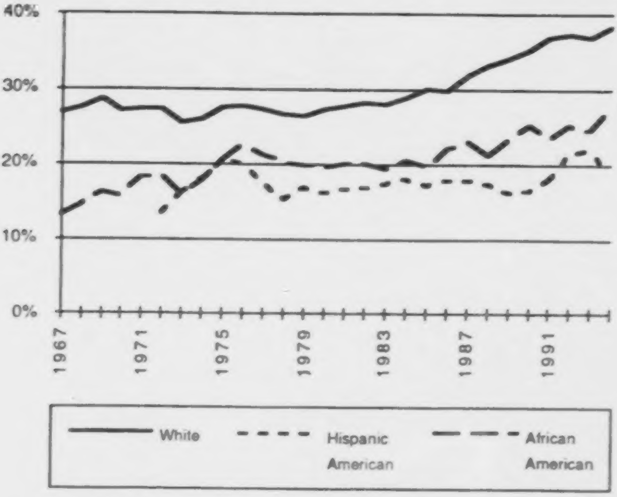


the age of the student, compared with success, or completion, rates within five years of matriculation (Figure 39). Only half of the traditional-aged matriculants in 1989, and less than 40 percent of those who began their postsecondary educations at age 19 in the same year, completed their degrees within five years. The completion rates of older students are dismal. Less than 20 percent of students aged 20 to 29 at matriculation in 1989, and only 10 percent of students aged 30 and older, received their bachelor's degrees by 1994.

Examining the percentage of degrees completed by students' attendance status further explains these low rates, since older students are more inclined to attend school part-time and intermittently. The effects of this pattern of attendance on degree completion is revealed in Figure 40. While 50 percent of those who matriculated in 1989 as full-time students received their degrees within five years, less than 20 percent of those who entered as part-time students did so. Only 10 percent of those who matriculated less-than-half-time completed their degrees by 1994.

Finally, although the U.S. has prided itself on providing universal access to students of all ages and from all socioeconomic, racial, and ethnic backgrounds, two trends continue to concern us. First, while the doors are open, they are revolving — as many students enter and leave before completing their degrees. This fact is most troubling for racial and ethnic minorities, who continue to be economically disenfranchised and under-represented in higher education. Second, despite the considerable progress in enrolling minorities, white students still comprise the greatest proportion of enrollment for 18-to-24 year olds, and

Figure 41 Enrollment of 18-to-24 Year Olds in Higher Education by Ethnic Group



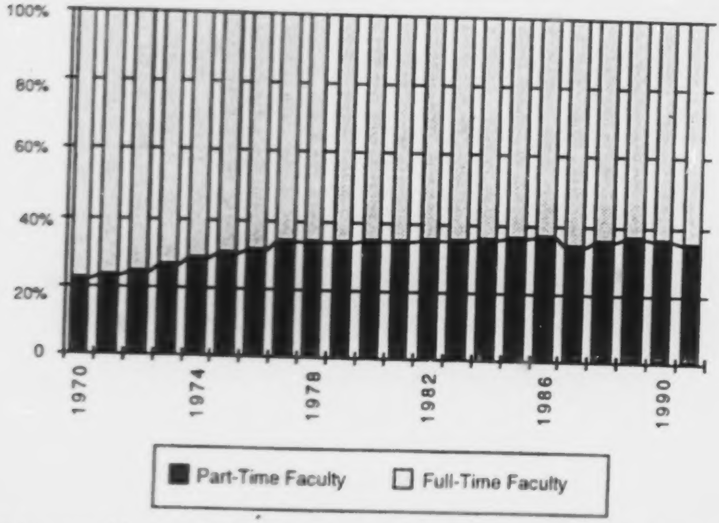
minority students still remain under-represented (Figure 41). The issue is further compounded by the high school completion rates of African-American, Hispanic-American, and other racial or ethnic minorities – suggesting that the shortfall in minority enrollment in higher education may be rooted in problems with secondary school attainment. Ultimately, these concerns extend beyond higher education itself to the ability of secondary and elementary education systems to prepare American minority students for further education. As a result of this and related observations, policy analysts now speak of the need not only for better articulation between K-12 and college but also for systemic reforms that reconceptualize the problems and solutions as a K-16 – or K-infinity – system.

The Agenda for Reform in a Time of Post-Massification

Faced with these pressures – declining revenue, increased expenditures for financial aid, growing demands for quality and accountability from consumers, trustees, and government, as well as resistance to tuition hikes – higher education has been forced to rethink its own enterprise.

It has begun to borrow new business models from industry by downsizing, outsourcing, and re-engineering many of its administrative functions in an attempt to cut costs. These reform efforts are being extended to the academic arena as well. In response to public complaints regarding faculty – in particular, faculty time spent on research rather than on undergraduate teaching – institutions have

Figure 42 **Percentage of Full-time and Part-Time Faculty in Higher Education: 1971 to 1991**



begun to reconsider mechanisms for enhancing faculty productivity as well as the very viability of tenure. As an interim strategy, institutions have increasingly relied on part-time and adjunct faculty positions in which the explicit job responsibility is teaching. As shown in Figure 42, the percentage of part-time faculty almost doubled between 1970 and 1991. It is important to note that institutions' hiring practices have a ripple effect, altering the demand for Ph.D.s, and that there is currently a widespread concern about the oversupply of doctorates. As shown in Figure 43, at a time when academic departments are experiencing retrenchment and downsizing, the number of doctorates granted rose sharply from 1989 to 1993 and then began to level off. Across the country, policy discussions are taking place about possibly limiting the number of admissions to Ph.D. programs in selected fields – from physics to history – due to discouraging job market projections.

Higher education institutions are making headway in dealing with these emerging crises through new planning processes and innovative initiatives. Some promising evidence of the success of such transformation lies in a competition initiated in 1996 by the Pew Charitable Trusts – the Pew Leadership Award for the Renewal of Undergraduate Education – which recognizes baccalaureate institutions that have taken substantial steps to revitalize their operations and

Figure 43 Doctoral Degrees Conferred: 1950 to 1996

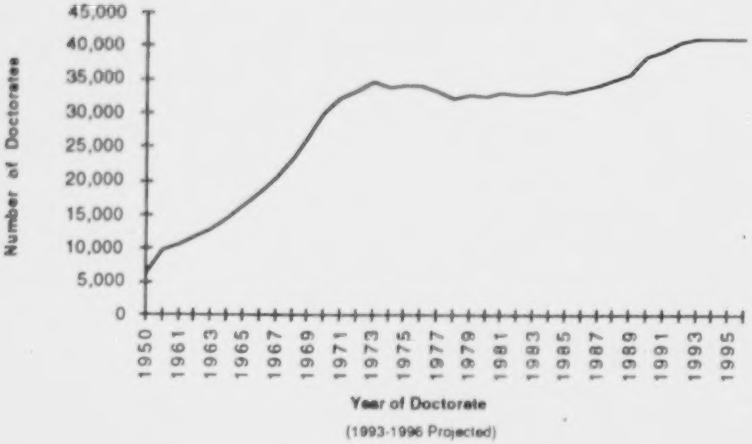


Figure 44 Areas of Renewal Activity Cited by Pew Leadership Award Competitors

Curriculum Redesign	
Development of new teaching / learning paradigms	●
Rethinking the purpose and content of general education	▼
Development of interdisciplinary major	+
Consultation and cooperation with business and industy	+
Faculty Roles and Responsiblities	
Faculty engagement in restructuring	●
Support for faculty development; provision of opportunities	▼
New emphasis on teaching in tenure and promotion decisions	▼
Resource Reallocation	
-Evidence of administrative reengineering	▼
Increased allocations to key academic programs	+

● 51% or more of competitors
▼ 40% to 50% of competitors
+ 20% to 39% of competitors

improve the quality of undergraduate teaching and learning. The tenor of higher education reform in the U.S. is reflected in the achievements of the 45 institutions nominated for the award. Figure 44 cites the areas of renewal activity most frequently cited by these competitors.

Despite the foothold that explicit reform efforts have gained, American higher education institutions still face serious choices about appropriate cost-cutting strategies. Unlike the Draconian downsizing that has become the norm for

American corporations, higher education's tradition attempts to preserve academic positions. Until now, for the most part, when cuts have been mandated, they have occurred first in administrative units and then across-the-board in academic departments. This approach affects the entire institution and hinders the ability of that institution to invest selectively in its own future. In this era of post-massification, we are beginning to see a different management approach, where colleges and universities selectively invest in certain fields that will likely thrive in future markets. With little prospect of new revenue funds from traditional sources – public appropriations, higher tuitions, and unrestricted gifts – the initial reinvestment for future growth areas necessarily depends on funds garnered from savings as well as the elimination of obsolete programs and institutional functions.c

Not surprisingly, this management approach exacerbates tension between faculty and administration and calls into question the premise of shared governance. The result is an inherent obstacle to the reform process: while an institution must now define a sense of collective purpose to serve its external constituencies, a recurring difficulty on campuses is translating this degree of commitment into a genuine process of institutional change. In a variety of ways, the collegial culture that once informed academic governance no longer functions. In its place we see a negotiated culture that stresses the interests of particular parties over those of the institution as a whole. This shift is evident in the slow progress of campus efforts to design tests and deliver new educational programs – a process that is more enterprise-like in the sense that it is modeled less either on legislative or regulatory procedures. Difficulties are encountered as the institution needs to enhance its entrepreneurial perimeters while still revitalizing its traditional core. In the process of bringing about these reforms, the traditions and prerogatives of academic governance seem out of place, designed more to protect threatened values than to recast an institutional economy. The unfortunate result is that committees become bogged down in endless detail and in the wrangling that ineffective shared governance inevitably engenders.

Many in the academy still wish they could enjoy the respect once accorded institutions of higher learning. Indeed, the question most often asked within the academy is still: "how can society be made to recognize and support the value of what we do?" However, the question now regularly asked by legislators, employers, parents, and students is: "In what ways can post-secondary education serve us better?" Bridging these disparate perspectives will be one focus of American discussions to resolve the challenges posed in the era of post-massification. Of course, this is uncharted terrain, with extremely high stakes.

Nonetheless, we are optimistic about the utility of the national research and policy analysis efforts currently underway in a number of American venues, especially that of our colleagues in the National Center for Postsecondary Improvement.

We greatly appreciate – and learn from – forums like this, which enable all of us to better understand the challenges we face in an international context. Thank you for your attention, and we look forward to our continued deliberations.

Current Issues in Higher Education*

François Grin
University of Geneva
Christoph Metzger and Andreas Grüner
University of St. Gallen

INTRODUCTION

What follows is an overview of key features and current issues in higher education in Switzerland. Small as it is, Switzerland displays an unusual degree of complexity, which reflects its multilingualism on the one hand, and its federal (that is, decentralized) structures on the other hand. These traits unavoidably affect the education system, including higher education. Hence, it would be overly ambitious to attempt to do justice to the resulting complexity within the confines of an article of standard length[1].

This paper, therefore, contains a highly summarized presentation of "higher education in Switzerland" —given the country's high level of decentralization, the latter expression is more appropriate than something like "Swiss higher education". Following this brief introduction, it is broken up in five sections, which are, in turn, divided in sub-sections.

The first two sections present a picture of the system as it is now. Section 1 describes the context of higher education in Switzerland; it singles out key features that are essential to an understanding of current issues and policy debates. We show that social, political and cultural context is a determining influence on the present structure of higher education in Switzerland; this, in turn, brings to the fore issues (as well as avenues for problem-solving) which may be quite different from those encountered in other developed countries. Section 2 provides a closer look at some selected aspects of higher education, using data that stress issues specific to the Swiss case (as opposed to issues that are, presumably, common to higher education systems throughout the world). Although education statistics in

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*Paper presented as a Country Report, Switzerland

[1] By way of comparison, the OECD's "Review of National Policies for Education" volume on Switzerland, which purports to present the entire education system (s) in the country but remains fairly general, runs into well over 200 pages (OECD, 1991).

Switzerland tend to be less extensive than those of neighboring countries, enough of them are available to show where major areas of concern are to be found: contrary to, say, France or Germany, Switzerland is not confronted with the massification of tertiary education—with the exception of overtaxed medical schools, where the introduction of a ***numerus clausus*** is being considered. At this time, two other categories of issues are key areas of concern, namely management structures and evaluation issues.

The first set of issues is examined in section 3, and the second in section 4; these sections are devoted to a discussion of challenges to and changes in the system, thereby addressing its dynamics. Section 3 focuses on management issues in higher education, particularly the autonomy of institutions of higher learning; this evolution, as we shall see, is strongly influenced by *New public management*. Section 4 addresses reforms that are part of a drive towards improving the quality of the educational and research services provided by universities.

To be sure, this overview cannot hope to do justice to the complexity of the issues at hand, nor does it address all of them. Some of the problems currently encountered by the higher education system in Switzerland are essentially the same as those found elsewhere, and have to do with the total and per student cost of universities. Mundane as they may seem, such questions are among the most hotly debated in Switzerland. Hence, they deserve mention, and they will be discussed briefly in Section 2.

The three main themes singled out by our host institution, the *Research Institute for Higher Education* of Hiroshima University, therefore run throughout this paper. Theme (1), organizational reforms at institution and system levels, is central to our section 4, although some elements of ongoing reforms will already be presented in section 2; theme (2), reforms of the basic administrative structure and management aspects, is the focus of our section 3; theme (3), on the present situation of academic reforms, provides the thrust to our concluding section; all three build upon the necessary background information provided in sections 1 and 2 of this paper.

1. SWISS HIGHER EDUCATION IN CONTEXT

1.1 Overview of the social, political and economic context

When observed from the outside, Switzerland's key economic, social and political features are not always apparent. Some traits are well-known—e.g., Switzerland is often described as a "small" and "prosperous" country, which is remarkably "multilingual", and has, in international comparison, dealt remarkably well with its diversity. Beyond these very general characterizations, however, it is often the case that little is known about other distinguishing features of the country. It is important to recall some of them here, because they play a major role in defining the education system in Switzerland as we know it, including higher education.

Should these features be summed up in one key concept, the latter could well be "federalism" or "decentralization". Federal structures are not a rarity in modern states, and are found, in some form or other, in polities as diverse as India, South Africa or the United States. What makes Swiss federalism very specific, however, is on the one hand its deep-rooted history, whose origins can be traced back to the foundation of the Swiss Confederation (conventionally dated back to 1291), and on the other hand the fact that Swiss federalism plays itself out in a very small country (41,000 km^2) whose population barely reaches 7 million (on Swiss political structure, see e.g. Linder, 1994). Both features put federalism and decentralization at the very core of Swiss political, social and institutional experience.

Switzerland is now made up of 26 cantons or half-cantons which enjoy considerable political and fiscal autonomy. Much of the decision-making power, including the educational sphere, is therefore vested in the cantons and half-cantons, and sometimes devolved to the even lower level of communes (municipalities), which in Switzerland number 3,021 (for a recent presentation of Switzerland's administrative structure, see e.g. Germann and Weis, 1995).

Linguistic diversity is another key feature of Switzerland. It is intimately connected, though not identical, with political decentralization. Linguistic diversity (as distinct from political federalism) exerts an influence on the very diverse and decentralized structure of education in Switzerland, because it shapes the context and workings of higher education. One obvious example of such an influence is the fact that student mobility is much stronger *within* than *between* language regions. Hence, linguistic aspects must be reckoned with in the selection of academic policy orientations, such as the move from "universalist" to specialized universities focusing on limited areas of teaching and research excellence.

One important aspect of Switzerland's language make-up is the fact that linguistic boundaries do not coincide with political ones; in other words, some cantons are bilingual (or even trilingual in the case of Graubünden), and whereas most municipalities are unilingual, there are some exceptions, usually found along linguistic boundaries. The latter boundaries, however, demarcate clear-cut, unilingual language regions. There are clearly-identified French-, German- and Italian-language regions. The Romansch-language region, however, is less homogeneous owing to the modest number of speakers of Romansch (0.6% of the overall resident population) and the strong demo- and socio-linguistic influence of German there (on Swiss linguistic diversity, see e.g. Département fédéral de l'intérieur, 1989). Most native speakers of French (19.2% of the resident population according to the 1990 federal census) and German (63.6%) live in the language region where their language is demolinguistically dominant, and is the sole official language at local level[2]. As regards speakers of Italian (7.6%), a little over half of them live outside the (not fully, but fairly homogeneous) Italian-language region; this is the result of sustained immigration from Italy over several decades following WWII, where Italian immigrants settled in all four language regions of Switzerland. Switzerland is multilingual because of the existence of homogeneous language regions, but the Swiss themselves — as individuals — are not necessarily bilingual, even if the occurrence of individual bilingualism is fairly high.

Whether linguistic diversity should be seen as an asset or a hindrance in the performance of the education system, particularly in higher education, is a question whose examination would far exceed the scope of this paper. Suffice it to say that diversity is a historical and cultural trait which is central to Switzerland's identity and self-representation; its maintenance is at the core of the country's political culture and policy orientations. This appears to converge with the increasingly accepted view (in academic research and political discourse worldwide) that linguistic and cultural diversity are intrinsically valuable. This issue has been raised by an international panel of experts investigating the current state of teaching and research in social science in Switzerland (SSC, 1992: 11) :

> *"[...] The relationship between the German- and French-speaking parts of Switzerland [...] is made even more complex by the fact that linguistic and cultural fragmentation sometimes hides paradigmatic differences in fields of science. The international panel of experts became convinced that this cleavage does not remain without impact on the cooperation between scholars from these two parts of Switzerland [...]. This should be turned to positive account. In the wider European context it is an opportunity, not a liability. This is so in science, as in other spheres of culture and societal endeavour."*

It is not without importance to note that there is no correlation between religious affiliation and language, and hardly any more between religion and canton of residence. Switzerland is a highly secularized country, where religion plays little part in social life or in the education system.

Switzerland is currently regarded as one of the most prosperous countries in the world, as measured by its per capita income of $33,515, that is, 97% of the corresponding US figure after adjusting for respective purchasing power parities (1993 figures; see *The Economist*, 1994). Though currently in the throes of a protracted recession, Switzerland still enjoys a high GDP per head in international comparisons. This fact should not conceal important inter-regional differences; the latter, however, are not significantly correlated with differences in per capita spending on education. At the national level, Switzerland is not exceptional, in that some 5.1% of GDP is spent on education (absolute effort rate), corresponding to approximately 15.9% of public spending (relative effort rate), which is high by international comparison[3].

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[2] Although [standard] German is one of Switzerland's four official languages, officially German-speaking areas use a distinct vernacular for most non-written porposes. This vernacular, known as *Schwyzertütsch* (Swiss-German) is markedly differnt from standard German and has no recognized written from. Hence, standard German remains the medium of written communication in "German-speaking" Switzerland.

In short, Switzerland displays, for its small size, a remarkable diversity and a high level of complexity. It should come as no surprise, therefore, that there is no such thing as a Swiss education system, and no national-level ministry of education – what there is, however, is an education system *in* Switzerland, or, rather, a collection of distinct education systems, which will be described briefly in the following sub-section (1.2).

1.2 Tiers of the Swiss education system (s)

Apart from pre-school education, which will not be further considered here, it is customary to break up the Swiss education system in four tiers: primary level (ISCED 1) ; lower secondary level (ISCED 2) ; upper secondary level (ISCED 3) along with some types of professional education which would often be considered ISCED 5; tertiary level in the first and second stages (ISCED 6 and 7)[4]. Primary and lower secondary education taken together normally last 9 years; in most, though not all cantons, the first 6 are considered primary school; a few cantons have shorter primary school and correspondingly longer lower secondary school.

Upper secondary schools comprise: (1) "academic" education, namely schools preparing pupils for the "maturité" or "Matura" and then university; this is roughly comparable to British A-levels; (2) teacher training colleges; (3) general secondary schools, stressing professional rather than theoretical or academic skills; (4) vocational schools, which are comparable to the vocational schools found in most countries, but which are attended only part of the week, as part of an apprenticeship system where most of the trainee's time is spent at work in the firm itself[5]. Depending on the kind of schooling followed, the upper secondary level can cover from 3 (exceptionnally only 2) to 6 years. For those who intend to go on to higer education, 4 years is the norm. Up to and including the upper secondary level, less than 5% of pupils attend private schools: in Switzerland, education is clearly seen as a service to be provided by the state and financed by taxes.

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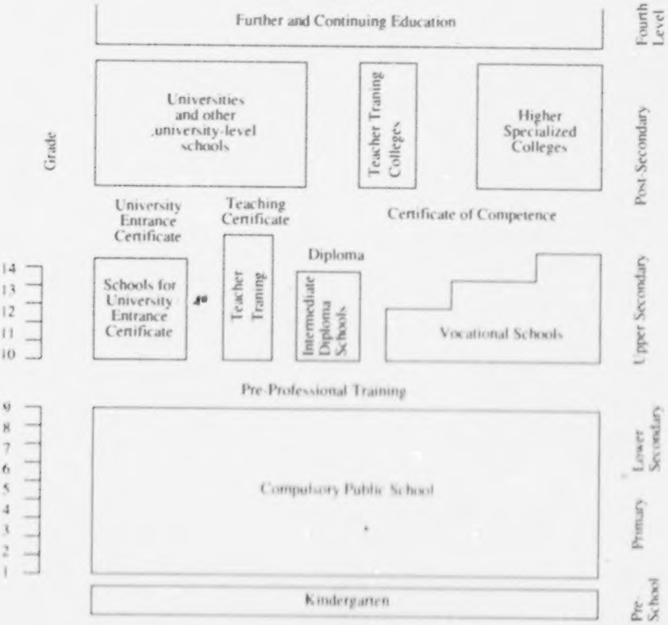
[3] If social insurance payments are excluded from total public spending, the share of education exceeds 19%.

[4] ISCED stands for *International Standard Classification for Education*; this index was developed by UNESCO in order to facilitate international comparisons of education systems (see OECD, 1993) .

The tertiary level (a.k.a. "higher or post-secondary education") includes 12 university-level institutions, which will be presented in more detail below, as well as "higher professional education" (engineering schools [ETS], business, management and administration colleges [ESCEA], home economics training [ESEF], applied arts schools [ESAA], schools of social work [CSESS and CSEES], and technical colleges). In some cantons, teacher training is also located at the tertiary level (for a more complete presentation, see OFS/AFF/CESDOC, 1991, and OFS, 1995).

The education system in Switzerland can be represented with a diagram which can be viewed as a matrix for student flow-charts (Fig. 1).

Figure 1
Swiss School System


Further and Continuing Education
Fourth Level
Universities and other university-level schools
Teacher Traning Colleges
Higher Specialized Colleges
Post-Secondary
Grade
University Entrance Certificate
Teaching Certificate
Certificate of Competence
Diploma
14
13
12
11
10
Schools for University Entrance Certificate
Teacher Traning
Intermediate Diploma Schools
Vocational Schools
Upper Secondary
Pre-Professional Training
9
8
7
6
5
4
3
2
1
Compulsory Public School
Lower Secondary
Primary
Kindergarten
Pre-School

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5 This is known as the "dual system", also found in Germany, Austria and Singapore; it has been credited for the enviably low unemployment rates that Switzerland has known until 1991. For a more detailed presentation, see e.g. Wettstein *et al.*, 1989.

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In the following sections, we shall mainly focus on formal, academic higher education, that is, on universities and similar institutions of higher learning. At this time, however, Switzerland is about to introduce a new type of tertiary schools (the *Fachhochschulen*, or *Hautes écoles spécialisées [HES]*) comparable to the erstwhile British polytechnics. Their introduction represents a major evolution in Swiss higher education, and they will therefore be discussed in sub-section 2.5.

2. KEY FEATURES AND FIGURES

2.1 Structure of higher education in Switzerland

Higher education in Switzerland currently includes the two *Federal Institutes of Technology* of Zurich and Lausanne, seven cantonal universities (Zurich, Basle, Berne, Geneva, Lausanne, Fribourg and Neuchâtel), the School of Advanced Economic and Social Studies in St. Gallen (referred to as the University of St. Gallen) and the Faculty of Catholic Theology in Lucerne. Several semi-independant institutes (for example, the School of Advanced International Studies in Geneva) are affiliated to the corresponding local university. Finally, a university-level institute was opened in the fall of 1996 in the Italian-speaking canton of Ticino. For the 1995/96 academic year, over 88,000 students were enrolled in Swiss universities; over 40% of them were women and almost 20% foreigners.

Universities are placed under cantonal jurisidiction, and although considerable financial support flows from the federal authorities to the universities (see sub-section 2.4), their operations are controlled locally, which means that their degree of autonomy may be more or less extensive as the case may be (see sub-section 3.2). The exceptions are the two federal polytechnics which are placed under direct control of the Federal authorities. Swiss universities are public and are accordingly financed by public money[6]. At this time, tuition represents well under 5% of average per-unit (student-year) cost.

Swiss universities vary considerably in size, as well as in the range of courses they offer; for example, some do not have medical schools, or provide only initial training in this field. Table 1 provides a bird's-eye view of enrollment by school and by faculty.

All universities carry out research and teaching activities. Contrary to what

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[6] Small praivate university-level institutions (such as the Webster college) are of no real consequence in Swiss tertiary education, whether in terms of enrollment or otherwise.

Table 1
Language of instruction and enrollment in Swiss universities[a] by group of subjects, winter 1993/94

Subject	BS	BE	FR	GE	LS	LU	NE	SG[b]	ZH	EPFL	ETHZ	total
Theology	168	277	478	136	104	185	58	-	265	-	-	1671
Philosophy, languages and literature	811	917	743	2055	1470	30	561	-	3108	-	-	9695
History	708	1048	441	829	444	-	297	-	2272	-	-	6039
Social sciences[c]	402	935	1555	3510	1125	-	300	177	2495	-	317	10816
Economics & business	1044	1382	1351	1404	1255	-	575	3514	2556	-	-	13081
Law	1176	1644	1831	1409	1074	-	440	469	3098	-	-	11141
Other humanities & social sciences[d]	215	342	256	493	286	-	-	106	189	-	99	1986
Exact sciences	254	557	294	484	203	-	223	-	417	1101	1624	5157
Natural sciences	1347	1151	465	1201	909	-	523	-	1807	-	1649	9052
Other exact & natural sciences[d]	90	197	124	320	6	-	1	96	137	-	763	1734
Medical School and Pharmacy	1723	1785	325	1608	1609	-	103	-	2783	-	425	10361
Technical sciences	-	-	-	352	-	-	97	-	-	3359	6496	10304
Total	7938	10235	7863	13801	8485	215	3178	4362	19127	4460	11373	91037
Language of instruction[e]	G	G	F+G	F	F	G	F	G	G	F	G	

Source: OFS (1995a)

a*: Excluding the University of Ticino (created in 1996) . Codes: BS=U. of Basle; BE= U. of Berne; FR=U. of Fribourg; GE=U. of Geneva; LS=U. of Lausanne; LU=Lucerne Faculty of catholic theology; NE=U. of Neuchâel; SG=U. of St. Gallen; ZH=U. of Zurich; EPFL=Lausanne Federal Institute of Technology; ETHZ=Zurich Federal Institute of Technology.*
b*: including School of Advanced Pedagogical Studies;* ***c****: including sport studies;* ***d****: cannot be exclusively assigned to either subject;* ***e****: G=German; F=French.*

can be observed in the case of numerous junior colleges in the United States or the erstwhile polytechnics in Britain, Switzerland has no tertiary-level institutions entirely devoted to teaching. This situation is liable to be altered by the creation of the *Fachhochschulen* (see sub-section 2.5 below). Obviously, the amount and international standing of the research carried out at various universities may vary, but fundamental and applied research is clearly considered part of what universities should do.

Despite the strongly decentralized structures of tertiary education in Switzerland, a significant amount of the research work taking place at universities is under indirect federal control through the Swiss National Science Foundation (NSF; *Nationalfonds/Fonds National*). The NSF is headed by a National research council and allocates research budgets on the basis of projects falling into three categories (human and social sciences; mathematics, natural and engineering sciences; biology and medicine). In addition, theme-based "national research programs" and "priority programs" are launched regularly for an average duration of six years (on the structure and workings of the NSF, see any annual report, e.g. FNRS, 1996). Research projects (whose duration is typically shorter than that of their respective program) are submitted in the corresponding subject areas. In what follows, we shall omit any further discussion of the research activities in Swiss universities in order to focus on teaching-related issues.

2.2 Access and enrollment rates

Access to tertiary education is, in Switzerland, conditional on having obtained a general "*maturité/ Abitur*" (see sub-section 1.2 above), or a "*maturité professionnelle/ Berufsmatura*" in the case of access to the *Fachhochschulen*. Some universities, however, will admit students who do not hold one, but such admission is not automatic and other requirements must be met (for example, five years' professional occupation above the age of 18) ; for all pratical purposes, the "maturité" , normally taken at age 18 to 20, after 12 to 13 years of compulsory schooling, remains a necessary step on the way to higher education.

However, the percentage of young people earning a general "maturité" is, by international comparison, remarkably low: in 1993, only 16% of residents aged 19 or more were maturité-holders; this figure certainly represents a marked increase (it was a mere 11% in 1980) (OFS, 1995b). Systematic comparisons are difficult to make for two reasons: some reflect the weaknesses of educational statistics worldwide, particularly in Switzerland; for example, figures may be computed on the basis of the entire population, or on the basis of the share of a given age group obtaining a given degree; some are definitional: leaving certificates can have a very different content between countries, and it is well-known that Japanese leaving certificates are considerably more demanding than U.S. high school diplomas. Still, setting aside the issue of comparability of content, there is no doubt that the Swiss figure is at the bottom end of OECD countries; for example, the rate of "Abitur" -holders in Germany is slightly below 40%, and the percentage of "baccalauréat" -holders in France exceeds 50%!

To be sure, there are considerable differences between regions in Switzerland. For example, the percentage of "maturité" -holders is significantly higher in French- and Italian-speaking than in German-speaking Switzerland, with a maximum rate of 32% (men: 28%; women: 37%) in Geneva (1993). At the very opposite of the scale, Appenzell-Innere Rhoden displays the lowest rate of all (8%). It is also interesting to note that among "maturité" -holders, women tend to outnumber men in French-speaking Switzerland, while the reverse is still true in the German-speaking part of the country.

These figures call for a few brief comments. Is it the case that the Swiss are, in international comparison, under-educated? Such an interpretation probably would not be warranted. If an international comparison is made on the basis of the percentage of youths leaving upper secondary education with some credential, the figure for Switzerland is 83%, which very much in line with other OECD countries (this rate is higher for Germany, Austria, the Netherlands and Japan; it is lower for France, Italy, the United Kingdom and the United States[7]. The key difference is that education systems in Switzerland tend to direct people towards vocational education and training—traditionally under the dual system, but slightly more in recent years, for reasons that will not be discussed here, in full-time schools with vocational content—much more than other countries do.

It is beyond the scope of this paper to discuss whether this is a bad thing or not. It is often claimed that the low rate of people gaining access to university is proof of the system's failure, but such claims are usually perceived as unconvincing; for example, it is not obvious why emulating the very high percentages of "baccalauréat"-holders in neighboring France should be a policy objective *per se*. It is generally agreed, however, that the system needs an overhaul. A new form of "maturité", under the name of "maturité professionnelle", stressing technical and business skills as opposed to theoretical/academic skills, is currently being introduced. Its main function is to regulate access to a whole new kind of institution of higher education, the *Fachhochschulen* (or, in British parlance, *Polytechnics*, before these were turned into universities in the nineties). The major policy shift brought about by the creation of the *Fachhochschulen* is discussed in sub-section 2.5.

In any event, the offshoot of the low rate of "maturité" -holders is a very low enrollment rate in universities. Consider the figures in Table 2, affording an international comparison for ages 17 to 24.

We have seen (Table 1) that with its 90,000-odd students, Switzerland had a very modest student population, approximating to 1.3% of the resident population. By way of consequence, the percentage of residents holding some or other university degree is also very modest. The total number of degrees awarded per year has only just exceeded the 10,000 mark (the most recent figures are for 1994: 8,690 bachelor's and master's degrees were awarded, plus 2,598 PhDs). This means that the percentage of the population aged 27 holding a university degree is under 7%, the second lowest in OECD countries after Turkey; only Austria has a comparably low figure.

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[7] Domestic differences are minimal; the rate exceeds 90% in 4 cantons, and falls below 75% in only 2.

Table 2
Compared enrollment rates in public and private university education Full-time, 1991

Country	University education (by age)							
	17	18	19	20	21	22	23	24
Australia	10.7	18.8	17.7	14.4	9.5	6.1	3.9	2.8
Canada	7.1	17.6	24.4	23.3	21.0	16.4	10.6	6.9
France	1.6	14.8	19.8	20.8	18.8	15.8	12.1	8.4
Germany	0.0	0.2	3.7	8.9	12.5	14.4	15.3	15.0
Netherlands	0.0	4.2	7.4	8.5	8.5	8.3	8.2	6.6
Switzerland	**0.0**	**0.4**	**2.5**	**6.1**	**8.1**	**8.6**	**8.2**	**7.3**
U. K.	1.0	11.5	14.8	12.8	10.4	5.3	3.1	2.1
U. S.	2.6	24.5	22.9	23.3	20.5	14.8	10.0	5.6

Source: OECD (1993)

2.3 Aspects of student life: mobility, duration of studies and drop-out rates

Student mobility in Switzerland is low, in the sense that young people going into higher education traditionally attend university in (or near) the city where they grew up; if they take more than one degree, they usually do so in the same institution. This lack of mobility can be traced back to three causes.

The first is that Switzerland is part of the "continental" European tradition, which, contrary to the Anglo-Saxon tradition found in Britain and in North America, places little emphasis on mobility; even at pre-university (e.g., secondary) level, only an insignificant minority of pupils go to a boarding school. Generally, studying in one's home town makes it possible for students to go on living with their parents, which keeps individual educational costs down. In this sense, Switzerland is similar to neighboring European countries like France or Germany[8].

The second important factor is, again, linguistic diversity. Limited competence in Switzerland's other languages tends to discourage people from moving to a university located in another language region — and hence from studying in another language, because the (non-material) "entry cost" is much higher. To be sure, second-language competence earned by studying in another language is highly rewarded on the labor market (Grin, 1996). However, structural excess demand on the labor market until 1990 generally kept wage rates high and unemployment rates low, thereby reducing the incentive to become proficient in another language by moving and studying in another language region.

The third factor restricting student mobility is institutional. Swiss universities themselves have long discouraged students from, say, earning a BA in one university, and then going to another to study towards an MA and/or a PhD. Formally, this means that degrees awarded by one university often were not recognized by another – or only after incurring a considerable amount of red tape; informally, it implied (not *de jure*, but certainly *de facto*) that people intending to study towards a PhD were given teaching assistantships (the easiest and usual way to finance one's graduate education) only if they had taken their previous degrees from the same university, because they could then be expected to know the ropes and require no breaking into their new duties. Although the importance of hurdles to student mobility is difficult to quantify, the data reported in Table 3 below offers telling circumstancial evidence.

However, efforts are currently being made to encourage inter-institutional and inter-regional mobility; limitations of time and space prevent us from discussing this in greater detail; see OFS (1996).

Low mobility probably sets Switzerland at one extreme end of the spectrum in an international comparison of Western countries. In two other aspects of student experience, it may be less different from its biggest neighbours, respectively Germany and France. These are the average duration of studies and the percentage of students leaving the university without having completed a degree.

First, the *duration of studies* has tended to increase over the ten years between 1976 and 1986; since this trend appears to have deepened since then, there is now widespread concern that the duration of average studies until the first degree is earned might top 13 to 14 semesters in German-speaking Switzerland, and 11 to 12 semesters in French-speaking Switzerland; figures for men and women are roughly equivalent (Meyer, 1996). Given an average per-student yearly cost of some SFr. 30,000 (US$ 22,000), keeping average duration down is

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[8] Traditionally low *student* mobility must not be seen as necessarily implying low *overall* mobility. Since the late 18th century, it has been customary for well-to-do families to send their sons to foreign universities; from the end of 19th century onwards and well until after WWII, irrespective of social status, it was common for the young German-Swiss of both sexes to spend a year in French-speaking Switaerland (this experience, usually part of one's *professional* or *vocational* training, was called "*das Welschlandjahr*") . But most of all, Switzerland has been an emigration country for centuries, because its poor alpine soil and conservative oligarchic socio-economic environment offered very limited prospects. Whereas there has been a steady flow of immigrants into Switzerland as well, immigrants were in low numbers and sometimes fleeing religous or political persecutions in more conservative European countries. It was not until the second half of the 20th century that Switzerland became an immigration country. At this time, foreign residents make up about 18% of the population, a rate second only to Luxembourg's. Nevertheless, Swiss citizens living outside Switzerland now number well over half a million; in other words, between 7% and 8% of Swiss citizens live outside the country—a very high percentage by any reckoning.

Table 3
Recognition by Swiss universities of studies and various aspects of course work completed at other Swiss universities
Survey of full professors in Swiss universities (percentages, 1992)

Type of studies/work at other instituion:	Full recognition upon presentation of certificate issued by institution	Full recognition upon checking of credentials with issuing institution	Partial recognition upon checking of credentials with issuing institution	No recognition
Courses	46.9	38.1	11.7	3.4
Seminars	37.7	44.0	15.1	3.2
Research reports and memoirs	30.2	50.0	14.5	5.4
Undergraduate degrees (and intermediate exam results)	37.2	42.0	18.1	2.7
Number of terms	42.4	34.0	17.5	6.1

Source: OFS (1994)

often viewed as a valid policy objective. How rational such an objective actually is remains a moot point, however: if a given total expenditure is spread over *N* students, including a fraction m of deadweights, accelerating "throughput" would, in the absence of a *numerus clausus* restricting total enrollment, tend to *reduce* the latter; there is no guarantee, however, that a drop in total enrollment would necessarily cause expenditure to go down; hence, efforts made to limit average duration are likely to leave total spending constant and to drive up per capita spending.

Second, *drop-out rates* are seen as unnecessarily high. Although uneven depending on sex (women drop out more than men), subject (for example, language students drop out more than medical students) and age (students who start university at a later age are more likely to drop out than their younger peers), these rates are high indeed. About 25% of men and over 30% of women never complete their university education. Whether this is problematic or not depends, of course, on the same factors as in the case of studies duration. One added twist is that much of the observed drop-out rate is the result of experimenting, that is, young people trying out one or two different orientations before settling for what they like best. Curbing this tendency may not be optimal: as shown by Manski (1989) some experimenting may well be preferable to no experimenting at all.

2.4 Expenditure and financing

The very decentralized structure of education in general, as well as the paucity of proper educational statistics in Switzerland, makes it difficult to provide full-proof evaluations of the total amount spent on higher education, and to disentangle expenditure on teaching and research. This problem is further compounded by the difficulty of choosing a proper formula to assign to either activity its proper share of certain components of expenditure—e.g., building depreciation.

Nevertheless, recent estimates indicate that spending on higher education, inclusive of federal funds earmarked for pure research projects, amounted to S.Fr. 3,514 million ($ 2,584 million) in 1994, out of a total spending of S.Fr. 20,214 million 14,863 million) for education as a whole; hence, some 17.5% of total educational spending is directed towards higher education. From this total, some S.Fr. 450 million are provided by the Federal state to support research activities proper; such funds, however, do not cover costs like maintenance and depreciation. Hence, total spending on teaching activities, along with the entire cost of running and maintaining Swiss universities, is slightly above S.Fr. 3 bn.

Expenditure per student can vary significantly from one university to the next; to a large extent, such variation reflects the presence or the absence of notoriously expensive medical schools. Table 4 below provides a comparison for universities proper, excluding federal technical institutes :

To assess intra-university variation in per student cost, let us consider expenditure per head and per area of study at the university of Geneva, whose

Table 4
Compared yearly expenditure per student in Swiss universities, 1992
Current S.Fr.

University	S.Fr./student
Basle	20,974
Berne	41,020
Fribourg	15,233
Geneva	29,445
Lausanne	32,036
Neuchâtel	20,677
St. Gallen	18,904
Zurich	29,630

Source: Grin, 1995

Table 5
Yearly expenditure per student and by area of study
University of Geneva, current S.Fr., 1995

Faculty	S.Fr./student
Sciences	45,161
Medical school	52,940
Letters (Humanities)	12,819
Social sciences and economics	9,748
Law	13,644
Theology	32,104
Education sciences	10,957
Architecture	27,528
School of translation and interpretation	22,644
Average	*28,936*

Source: Grin, 1995

aggregate cost lies close to the center of the distribution (Table 5) [9].

The costs of higher education are borne jointly by cantons and by the Federal state, with the latter covering a little under half of total expenditure, under the Federal Act on Aid to Universities. Part of the total cost is borne directly by the students, who pay a very modest tuition (by international comparison), and by inter-cantonal transfers. Take the case of a student whose parents are taxpayers in canton *x*, but who decides to attend university in canton *y* (either because canton *x* has no university, or if it does, because the student prefers to study in *y* than in *x*). Canton *x's* government will compensate canton *y* with a subsidy slightly above S.Fr. 8,000 per student and per year. This amount, which is significantly below actual per student cost, is currently under re-negociation between cantons, as part of the overhaul of the Intercantonal Agreement on University Financing of 1979 (already revised in 1984). Table 6 below provides a bird's-eye view of the structure of financing of Swiss Universities.

2.5 The *Fachhochschulen* or *HES*

Quite apart from the reforms to be discussed in sections 3 and 4, one major change is currently going on in Switzerland's higher education system, namely, the creation and setting up of the first *Fachhochschulen* (in German), or *HES*

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[9] Per unit costs may vary considerably depending on whether certain maintenance and depreciation costs are included. It is often the case that these are covered out of other government budget lines, and hence not included in university expenditure.

Table 6
Aggregated structure of finances of Swiss universities, 1995

	S.Fr. x 1,000	%
General Account	**3,030,575**	**81**
Tuitions	*62,489*	*2*
Own resources	*101,157*	*3*
Own cantonal subsidies	*1,328,883*	*35*
Intercantonal transfers	*214,568*	*6*
Other subsidies	*46,206*	*1*
Municipalities	*185*	*0*
Federal subsidies	*1,340,549*	*36*
Other income	*8,504*	*0*
- non-university expenditure	*-71,967*	*-2*
National Science Foundation	**243,752**	**7**
Other sources	**470,631**	**13**
Total	**3,744,958**	**100**

Source: Grin, 1995

(which stands for Hautes Ecoles Spécialisées, in French), whose focus and mission are comparable, as mentioned earlier, to that of erstwhile British Polytechnics. They are tertiary-level schools emphasizing applied technical or business skills; they will be accessible not only to traditional "maturité" - holders, but also to holders of the newly-created "*maturité professionnelle*" (stressing applied technical, as opposed to academic skills), including young people who have completed an apprenticeship under the traditional dual system before taking the " maturité professionnelle" examination. These *Fachhoschschulen* or *HES* (both terms will be used interchangeably in the following paragraphs) will therefore complement the traditional university system and fill a gap in the range of education and training offered in Switzerland[10]. In practical terms, the creation of the *Fachhochschulen* does not mean that new institutions are being created out of nothing. Rather, the new schools will federate existing technical or business colleges, setting up an overarching administrative and certificating structure, and boosting research and development activities; the latter aspect has key strategic importance, in order to ensure that the

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[10] A maximum of ten *HES* will be created for the whole country. The first ones are supposed to start operating in the fall of 1997. This is an unusually speedy process for Switzerland, given that the piece of legislation empowering the federal government to fund these new schools was passed as recently as January 1994.

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Fachhochschulen are more that glorified vocational colleges.

The creation of the *HES* is seen as a very important shift in Swiss educational policy, and the setting up of these institutions is causing heated public debate, often revolving around issues of local autonomy; indeed, the creation of the *Fachhochschulen* does take substantial decision-making and spending power away from canton authorities, something which runs against the grain of Swiss federalism. The main goals pursued are the following (*Bundeskanzlei*, 1994) :

- broadening the range of courses of study available in the higher education system, but focusing on the professional (vocational) fields;
- adequately training junior staff for positions in business and industry;
- raising the value and recognition (nationally and internationally) of non-academic training at Swiss institutions;
- rejuvenating the dual system by inducing more 16 year olds to enter vocational training, because of more attractive prospects opened up afterwards;
- guaranteeing comparability and compatibility between degrees awarded in Switzerland and degrees of similar content awarded elsewhere, particularly in Europe;
- providing attractive opportunities of continuing education for adults, while also opening more attractive prospects for youngsters contemplating vocational training and apprenticeships;
- developing partnerships between schools and businesses and encouraging sharing and transfer of know-how and technology.

This list of goals makes it clear that the *Fachhochschulen* should become a real alternative to traditional universities, at least in two aspects.

First, degrees awarded by the *Fachhochschulen* are supposed to receive as much recognition as university degrees — but in the world of engineering, business and commerce. Only time will tell, however, if the creation of the *Fachhochschulen* will result in a decline in the number of students enrolled in some faculties of the traditional universities, such as business administration, where enrollment has, at times, begun to severely tax the system (occasionally raising concerns about a possible trend towards long-term "massification").

Second, the approach to research and development championed by the *HES* will put much more emphasis than traditional universities on applied research and collaboration with business, including small and medium enterprises, which still form the backbone of the Swiss economy.

Of course, some degree of overlap between universities and *Fachhochschulen* can be expected, if only because some applied research has always been going on in Swiss universities, sometimes complemented by consulting and advisory activities to the private sector. Such overlap, however, need not imply useless competition, but can also foster complementarity between the two types of institutions, for example in carrying out joint research projects, exchanging teaching staff and harmonizing continuing education programs. What will definitely remain in the purview of universities are, of course, Master's degrees and PhDs (doctorates). As a result, restrictions will apply to graduates from a *Fachhochschule* who wish to be admitted to a university.

3. *MANAGEMENT ISSUES: ACCOUNTABILITY AND AUTONOMY*

It is a commonly accepted goal of the Higher Education system to guarantee the high quality of teaching and research as well as to improve it continously. In a time of obvious financial restrictions this must be obtained rather by optimizing the limited resources than by a continuous increase of expenditures (Lottaz, 1996, p. 16). Accordingly, several reforms concerning the management of the university system are to be observed. Some of these reforms are actually being discussed on a theoretical basis while others are already in the state of realisation. Two related reforms, i.e. the introduction of New Public Management (NPM) (Schedler, 1995) and Quality Assurance by Evaluation will be discussed in this and the following Section respectively.

NPM is a management approach of increasing popularity in higher education (Buschor, 1997). It is intended to develop a powerful and innovative system of higher education, to create lean and transparent structures of organization and management, to enforce the autonomy of the universities through increased self-responsibility, to improve efficiency and effectiveness through a more flexible and goal-oriented resource management and to enhance various forms of cooperation between the universities.

The strategies of NPM will lead to major changes of structures and processes in the management of universities. Two of its main aspects, namely autonomy of finance and of organisation can be described according the model of partial autonomy (Dubs, 1995).

3.1 Autonomy of finance

Owing to increasingly scarce financial resources, many universities in Switzerland are having to confront financial autonomy. Universities will be granted a global budget by either the Federal or State Government or Parliament, on the basis of which they are supposed to define their own, internal budgets

(Buschor, 1997; Dubs, 1997). As a consequence of this change of the budgeting-process, the formerly used input-oriented regulation of the university-system will be replaced by an increasingly output-oriented regulation, i.e. rather than any detailed positions of a budget the universities will be given a global budget based on clear yet global goals, given by the state, and—in the end—related to the actual performance of the university measured by specified input-, output- and outcome-indicators (Buschor, 1997). Global budgets can be characterized by a high degree of flexibility regarding the spending of resources. Hence they significantly increase the degrees of freedom to make decisions as well as the self-responsibility of the university boards. As far as the current situation is concerned, it seems that no university has totally accepted this concept yet; nevertheless, there is a growing tendency towards putting it into full practice. The University of St. Gallen might serve as an example with respect to the achievement of a global budget, at least as far as the given budget is only defined with regard to the period rather than the amount and quality of each expenditure[11]. First experiences with global budgets show quite clearly that it can only be realized if the performances the universities intends to consider are defined either in the form of a vision or a performance agreement (Dubs, 1997). Some universities have started developing such guidelines; the University of Basle, for example, has stated a very general performance agreement (Frei, 1996) while the University of St. Gallen has developed a vision for each faculty by going through a consensus-oriented bottom-up process. The University of Zurich has renounced development of a performance agreement but intends to define a global budget for each subject-area.

However, global budgets alone do not guarantee that universities will have enough resources to fulfill all tasks of high priority. Therefore, apart from the global budget made available by the state, universities will increasingly be required to raise further financial resources (e.g. research funds, sponsoring, services) in increasing amounts (e.g. see Erziehungsdepartement des Kantons Zurich, 1996). Yet, despite the risks associated with this mode of fundraising, the freedom of teaching and research has to be guaranteed by the by-laws of the university and its institutes.

3.2 Autonomy of organisation

Structural reforms especially emphasize the creation of leaner organisational structures. A three-level order of competence appears to be the model of choice wherein strategic and operational management are strictly divided (Cortesi, 1996;

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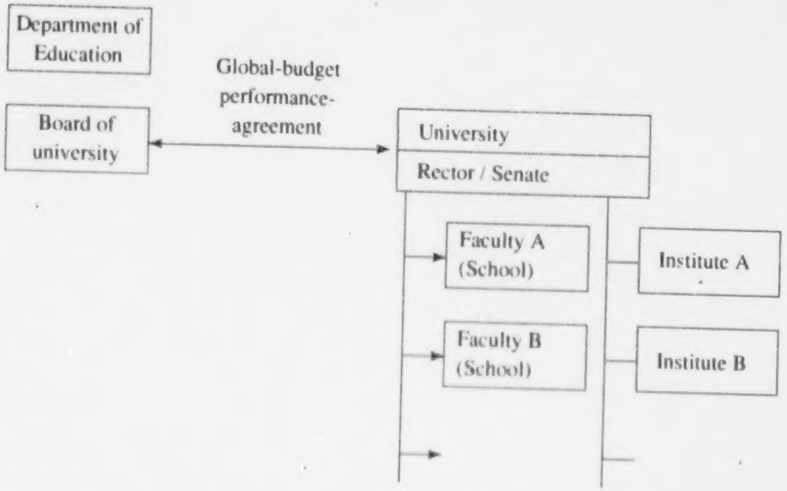
[11] Interview with K. Schedler and H.-R. Troxler, University of St. Gallen, January 13, 1997.

Figure 2
Organisational structure of the University of St. Gallen (Dubs, 1997)



Dubs, 1997). Since the University of St. Gallen seems to be most experienced with this model and other universities appear increasingly to adopt it (e.g. the Universities of Basle, Geneva and Zurich), the organisational structure of the University of St. Gallen will be described here in more detail.

As shown in Figure 2 the State Government and Parliament have charge of superintendence over the university. They only define general performance-goals and the global budget and are responsible for policy-oriented strategic control. However, the government (i.e. the Department of Education) is not responsible for the operational management issues or most of the strategic management issues (Schmid, 1996). A board of the university operates as an intermediary between the political authorities and the management of the university. Its function is to act as a board of trustees and as such it is responsible for final strategic decisions and control (e. g. appointments of professors, approval of study programs, foundation of institutes, acceptance of the university's budget). However, the majority of these decisions has to receive final approval from the government who retains ultimate political responsibility. On the other hand, operational management is the task of the university itself. Therefore the university's bodies include the Rectorate along with academic and administrative staff, the Senate comprising all professors, several faculties managed by a Dean, and finally several institutes. In accordance with the principle of autonomy, operational management is shared between the rector, the senate and the faculties. The institutes deserve special mention because they are almost fully autonomous, i.e. although they are eventually accountable to the board of the university, they are managed by professors on the strategic and operative level and have to finance themselves to an extent of about 95%. It should, by the way, perhaps be explained that these institutes are not only research-centers but are also - and sometimes even to a greater extent - doing consulting and teaching in continuing education.

Taking the example of the University of St. Gallen as a model, it is obvious that this rather strict division between strategic and operational management represents—within the approach of NPM—a powerful means to strengthen universities in their potential for teaching, research and services. This does not at all rule out the possibility for cooperation and coordination between different universities of Switzerland, but even for this the federal government emphasizes autonomy rather than centralized management - in accordance with the federalistic structure of the political system of Switzerland. The cooperation between the universities of Berne, Neuchatel and Fribourg may serve as a good example. Moreover, autonomy seems to foster constructive competition between and even within universities, which finally could serve the students as well as other stakeholders.

4 QUALITY MANAGEMENT AND EVALUATION

4.1 Universities in competition

A significant part of GNP is spent on public tasks, although at some 35%, it remains below the OECD average. In times of scarce resources, an increasing number of people call for an assessment of the efficiency of public performance. This demand also affects the universities. As was mentioned earlier, the costs of higher education are borne jointly by the cantons and the Federal state (Table 6). International competition and high public investment in education require an increased transparency of public performance and the costs involved. The rising interest of societal stakeholders in public spending underlines this development. Finally, increasing globalization and the corresponding necessity of harmonized standards and international recognition of education certificates require better comparability of public performance in the field of education.

The question of the efficiency of public spending in education primarily concerns the quality of public pre- and post-diploma education. Quality assurance and improvement will become an integral part of university management in the years to come. Universities which lack quality assurance will lose their eligibility in university rankings.

A study by Meyer (1996) referring to student drop-out rates shows that quality assurance systems at Swiss universities are sorely needed. According to this study, education in Switzerland is very heterogeneous. The drop-out rate (about 35% in Switzerland, which represents a middle position in international ratings) differs decisively between language and university regions (i.e., German-speaking region has higher drop-out rates than the French-speaking region, even though the duration of studies is longer). Such differences have to be avoided with a view to prevent regional imbalances. Therefore, in order to guarantee high quality education at the national level, suitable instruments for quality management based on uniform standards have to be developed. Such instruments should secure continued high standards of education in Switzerland.

The evaluation of universities, i.e. the systematic assessment of their performance ("assessment" is used synonymously for "evaluation" here), has therefore become a central task of responsible decision-makers in the education system. Quality assessment leads to relevant management information for efficient and effective correspondence with the education mandate issued by the state. This guarantees the flexibility needed to satisfy the demands of economy and society.

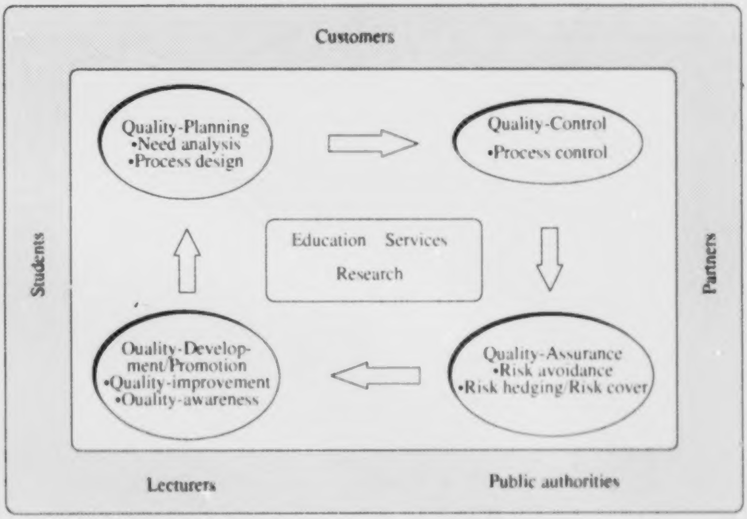
4.2 Total quality management in higher education

Quality-assurance and -improvement have traditionally been core principles in the quality management of enterprises. However, the service sector as well is in need of quality management. Therefore concepts of quality management are required. Total Quality Management (TQM) is a comprehensive quality concept relating the functions of quality planning, quality control, quality assurance and quality development / promotion (Seghezzi, 1996) which can be transfered to institutions of Higher Education. At the University of St. Gallen, for example, the quality management concept is defined as shown in Figure 3.

TQM aims at setting up a system of quality-assurance and -improvement for areas such as teaching, research and services, which is capable of monitoring, assessing, identifying potential trouble areas and suggesting necessary improvements. TQM does not mean that quality is assessed at one time only; rather, it implements a permanent effort to keep the standard of education at a university at a high international level. In addition, the establishment of a TQM system can accommodate a regular review of risks and opportunities as well as the positioning of a university in a certain area of knowledge. On the basis of this positioning, goals and action plans can be generated.

A central issue of the Total Quality Management concept is – in direct relation to its key elements – the assessment or evaluation of quality. Its goals

Figure 3
Quality management concept


Customers
Quality-Planning
•Need analysis
•Process design
Quality-Control
•Process control
Students
Education Services
Research
Partners
Quality-Development/Promotion
•Quality-improvement
•Quality-awareness
Quality-Assurance
•Risk avoidance
•Risk hedging/Risk cover
Lecturers
Public authorities

are:

- creating transparency in university performance for the public at large and enabling comparisons between universities;
- activating self-regulating powers in order to improve existing structures;
- optimizing performance, in the sense of quality-assurance and -improvement, analysis of strengths and weaknesses, elimination of points of weakness, determination of priorities and posteriorities, and effective resource allocation;
- improving the quality of exams, teaching and research on the basis of clearly determined goals in education and research.

Accordingly, two requirements of the assessment should be met, namely that (1) the evaluation helps to justify the required changes, and to give impetus to the reform processes within the university and (2) the assessment serves as an information basis for decisions by the university board in charge of strategic development.

4.3 Tailored evaluation activities in Switzerland

Research and practice of evaluation show that different dimensions have to be taken into account when an evaluation-concept is to be developed (Table 7).

Table 7
Dimensions of assessment

<table>
<tr><th colspan="5">Types of evaluation (Webler, 1996)</th><th>focus on time</th><th>area</th><th>object of evaluation</th></tr>
<tr><td colspan="3">external quality assessment</td><td>internal quality assessment</td><td rowspan="2">formative assessment</td><td rowspan="2">looking back</td><td rowspan="2">university as a whole</td><td>exams (written/oral)</td></tr>
<tr><td colspan="3">quality assessment by a person not involved in the process</td><td>self-assessment</td><td>education/courses</td></tr>
<tr><td rowspan="4">assessment of entire universities or departments by consulting companies</td><td rowspan="4">assessment by external experts of the same genre (peer-review)</td><td rowspan="4">assessment of a department by university consultant as independent expert, who is not of the same genre but also a member of a university</td><td rowspan="4"></td><td rowspan="4">assessment with qualifying elements</td><td rowspan="4">looking into the future</td><td rowspan="2">its subsystems</td><td>research</td></tr>
<tr><td>internal services (library, data processing, social institutions, etc.)</td></tr>
<tr><td rowspan="2">joint interaction</td><td>post-graduate education</td></tr>
<tr><td>external services (experts report)</td></tr>
</table>

Even this small number of criteria exemplifies the importance of an evaluation concept tailored to specific needs for later effectiveness. In this respect, the goal of the evaluation concept is decisive—for example, is the assessment meant to ensure and improve quality (formative assessment) or should qualifying elements for the assessed persons also be involved in the concept? It seems that there is no universal concept which can be used across the board at all universities, as, for example, the historically determined structures of the universities are too different. Depending on specific needs and problems at different universities, the reasons for establishing an evaluation system have been different at different universities, the evaluation process has focused on different aspects in the beginning and will be emphasizing different elements in the future as well. For instance, the University of St. Gallen has started with the assessment of exams and related processes, the University of Berne has begun by analyzing the performance of its administration, and the University of Fribourg has gone through a peer-review first (*Neue Zürcher Zeitung* 1997). Table 8 provides an overview of the current state of evaluation activities at Swiss universities.

4.4 Example: Evaluation approach of the University of St. Gallen

Whatever an evaluation system focuses on, each *individual concept* needs to be well founded with respect to contents and methods. Instead of giving a comprehensive description of all universities' concepts, the case of the University

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Table 8
Status quo of assessments at Swiss universities

University / Assessment	University of Basel	University of Bern	Federal technical university (in general)	Federal technical university Lausanne	Federal technical university Zurich	University of Fribourg	University of Geneva	University of St. Gallen	University of Lausanne	University of Neuchâtel
Object	faculties education research services	faculties education research teacher-education structures processes	faculties education research academic staff structures	faculties education research professors post-graduate education	faculties education research eurocompatability of education	faculties education research services structures	faculties education research services	exams education, courses research post-graduate education processes	faculties education, courses research services structures professors	faculties education research professors
Goals	quality-improvement assessment	strategic focus intensification of inter-and intra-university coordinat.	strategic focus allocation of resources	strategic focus quality improvement besserung	strategic focus allocation of resources efficiency improvement	strategic focus allocation of resources	strategic focus quality improvement allocation of resources	strategic focus quality improvement improvement acc. to TQM efficiency improvement	quality improvement allocation of resources	determination of priorities allocation of resources
Start	1996	n.a.	1989 (1977)	1987	1991	1995	1993	1994	1994	1995
Subjects	computer sc. chemistry WWZ bio-center MGU	chemistry biochemistry micro-biology molecular biology etc.	mathematics mechanics chemistry computer sciences etc.	chemistry physics computer sciences mathematics etc.	biology toxicology vet. med. faculty etc.	economic and social sciences etc.	law phamaceutics nuclear physics goal:eval. of 75 units	business administration economics law mathematics/computer sc. tecnology social sciences	biology philosophy geography social sciences etc.	private law history journalism etc.
Method	self-assessment questionaires ombudsman	self- and external quality assessment questionaires	self- and external quality assessment reports	self- and external quality assessment communication betw. acad. staff and students	self- and external quality assessment site visits, briefings, learnings, teams	self- and external quality assessment	self- and external quality assessment department report	self- and external quality assessment Quality assurance teams student surveys	self- and external quality assessment auto-assessment report	self- and external quality assessment resource data base
Costs per eval. of a segment (in sFr.)	30000	n.a.	n.a.	30000-35000	n.a.	45000-50000	20000	40000	16000-18000	n.a.

Sources:
Hochschulplanungskommission, Arbeitsgruppe Hochschulevaluation, Evaluation universitaire- Synthèse provisoire des activités en cours, 25.10.1996
Hochschulplanungskommission, Arbeitsgruppe Hochschulevaluation, Coûts des opérations dévaluation, 16.10.96
Hochschulplanungskommission, Arbeitsgruppe Hochschulevaluation, Annexe 5: Opération dévaluation: Etat actual, 22.9.95
(University planning commission working group university assessment)

ad table 2: This figure does not give the status quo of assessments at Swiss senior technical colleges, because they are in the build up phase. According to the "Thesen und Schlussfolgerungen zur Evaluation und Qualitätssicherung im Fachhochschulbereich" (Theses and conclusions regarding the assessment and quality assurance in senior technical colleges) of the federal ministry of industry, trade and work, the senior technical colleges commission of the EDK and the Swiss Science commission (Position paper, seminar Montreux, march 25-27 1996) the senior technical colleges are following a similar assessment philosophy as the universities.
In addition, it should be pointed out, that all the universities in table 2, except for St. Gallen, are making exemplary assessments in individual fields. In contrast the university of St. Gallen assess the exams, education and research in all fields.

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of St. Gallen will be used as an example. It is described and discussed below.

The evaluation commission at the University of St. Gallen, which was established by the board, has developed a comprehensive assessment model in numerous meetings in the course of almost one year. Not before having reached a broad consensus in the Senate of the university did the process of operationalisation and implementation begin about one year ago, consuming an enormous input of time and human resources ever since. According to Japanese philosophy "intensive and comprehensive planning — fast and efficient implementation" , the quality assurance and improvement system of the University of St. Gallen has now entered its implementation phase and has already shown the first possibilities for improvement, which are enacted step-by-step, analogously to the asiatic *Kaizen*-philosophy.

The evaluation concept of St. Gallen is based on the TQM-approach described earlier. It consists of two characteristic sub-systems, namely monitoring and measurement systems to identify weak points and control-systems to eliminate them. Two main instruments are used: (1) differentiated assessment and rating systems which focus primarily on self-evaluation but integrate some external assessment as well (mainly quality assurance teams, including representatives of all involved parties, and quality guidelines developed at the university, and an evaluation committee as the coordinator of all evaluation-activities), (2) evaluation reports containing a critical analysis and a list of measures as well as didactic support for quality improvement (mainly courses, eg. focusing on construction of exams, and individualized support).

The St. Gallen evaluation concept uses a multi-level approach. In the first phase an assessment of exams has been established, focusing on validity, reliability and efficiency of all forms of exams at all levels (i.e. from pre-diploma through masters and doctoral exams). Teaching, research and internal services (i.e. library, data processing, etc.) as well as external services (i.e. consulting, seminars for business and industry etc.) are to be evaluated comprehensively in the long run. The long-term evaluation approach includes the examination of the quality of results. The subject of the assessment is the general education program at the university, i.e. the content of the education and its relevance for the study of economics and law at the university. Any need for change will be implemented through future reforms. Additional input will be given by an impact analysis on the labor market, which will point out requirements for future graduates, and include an analysis of stakeholders' needs.

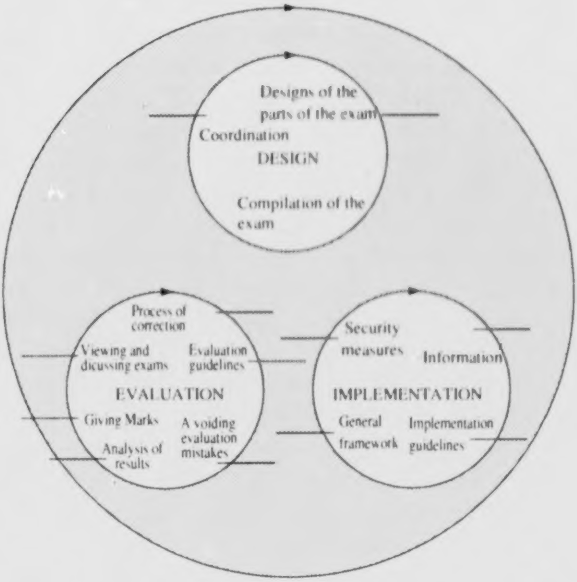
Finally, the evaluation concept of the University of St. Gallen is characterized by the combined use of a whole range of assessment instruments. We wish to highlight the use of quality assurance teams and cells, which utilize the whole spectrum of methods of data acquisition. For the first step of the evaluation, i.e.

the assessment of exams, a detailed quality guideline (Metzger & Nüesch, 1996) comprising implementation plans and checklists for ensuring scientific test criteria serves as the basis for all assessments. The process of quality improvement according to the TQM-approach is guaranteed by communicating the evaluation results in assessment reports to responsible persons as well as by continued modification of the quality guidelines. Figure 4 illustrates the assessment process of exams in the phases of design, implementation and evaluation.

Several observations have been made over a two-year evaluation period:

- The more comprehensive and precise the evaluation concept is, the higher is its informative content and the acceptance of the assessment results.
- The reflection and communication process is very decisive for quality improvement.
- The more clearly measures are formulated and defined, the better is the chance for implementation.

Figure 4
Assessment process of exams


Designs of the parts of the exam
Coordination
DESIGN
Compilation of the exam
Process of correction
Viewing and dicussing exams
Evaluation guidelines
EVALUATION
Giving Marks
Avoiding evaluation mistakes
Analysis of results
Security measures
Information
IMPLEMENTATION
General framework
Implementation guidelines

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4.5 Some experiences and recommendations

The following conclusions can be drawn from the experience of Swiss universities in the implementation of evaluation concepts:

- External assessment causes high costs. Methodological concerns (i.e. selection of qualified experts, acceptance) as well argue against its use. If applied at all, it should be used, only in addition to the internal assessment and only within long time intervals.
- A combined use of self- and external quality assessment as an internal university assessment has proven to be useful when establishing an assessment system. Once an assessment concept is working, it is recommended that more emphasis be put on self-assessment components (i.e. better communication, reduction in assessment workload, increase in assessment acceptance).
- The assessment concept as an elementary strategic concept has to be improved permanently and has to be adjusted to changing needs. For this purpose, an autonomous committee which is not involved in the ongoing assessments has to be formed. Consequently, the quality of the assessment system itself has to be examined and improved constantly.
- The establishment of a quality assessment system is a very demanding task, which carries high costs and time expenditure. Therefore, an assessment concept should be implemented only when sufficient acceptance exists. The implementation should be executed step-by-step, which enables timely corrections of the system. In order to reduce costs with working assessment concepts, the focus can be shifted from across the board assessments to assessments of samples.
- The efforts of each university to improve quality in higher education have to be supported by cooperation between the universities and commonly endorsed resolutions of the Swiss University Conference. A consensus has to be achieved regarding the goals, and contents, as well as measurement concepts and modalities. Common standards, as well as common indicators, for the assessment are required for all Swiss universities.
- Due to the heterogenity of assessment concepts and the common effort of many universities to assure quality, it appears to be useful to increase the experience-sharing activities by establishing information systems. By doing so, costly implementation and conceptional errors can be avoided.
- The standards for quality requirements have to be based on international levels, which support the acknowledgement of university certificates and benefits the realization of internships and exchange semesters abroad. Common quality guidelines and institutionalized quality assurance teams

within the university are a first step in the right direction.

Evaluation in education, exams and research enhances the performance and quality of a university, improves transparency and strengthens the quality of educational programs. In competing for students, different universities can gain a profile and position themselves with regard to their educational program. In this process, the diversity of educational approaches is maintained, but their quality should, on the whole, increase significantly.

5. CONCLUSION

These few pages are, of course, too brief to do justice to the complexity of higher education in Switzerland. However, we hope they provide a balanced overview of its main features.

In section 1, we have begun by presenting the context wherein the education systems in Switzerland operate. We have shown that *federalism* and *multilingualism* are determining characteristics of these systems. In section 2, we have provided an overview of higher education as it is now. By international comparison, the university system in Switzerland operates on a small scale; besides, owing to the way in which the system currently functions, only a relatively low percentage of the overall population attends universities and earns a degree. Hence, massification is not a main concern, whereas issues like lengthy studies and high drop-out rates are. The system is, however, about to be profoundly altered by the creation of an entirely new kind (for Switzerland) of tertiary-level institutions, namely the *Fachhochschulen* or *HES*, which are intended to bridge the gap between formal university education and various forms of more practical, or work-oriented, education and training. In so doing, Switzerland is engaging on a path of change that will bring its higher education system closer to what is found in other European countries.

In sections 3 and 4, we have focused on some of the important reforms currently going on in higher education in Switzerland. One deals with the autonomy and accountability of universities, both of which are expected to increase as a result of a general trend whose driving force is a concern with the efficiency of institutions. The principles of "new public management" (NPM) are brought to bear on the functioning of institutions of higher learning, with major organizational consequences. The other deals with quality control and assurance. It is very probably fueled by similar concerns with the performance of higher education, but results in the development and implementation of evaluation programs that are tailored to the needs of specific institutions.

Clearly, not only is Swiss higher education remarkably diverse and complex, despite its small size; it is also undergoing a series of far-reaching changes. These changes can, in turn, be put in a broader perspective. Higher education is not the only thing that is currently changing in Switzerland. In some way or other, the whole country is changing—at an unprecedented pace for a country better-known for its stability, if not its placidity.

Switzerland had enjoyed enviable prosperity for most of the post-war years. Even strong economic dowturns (for example, in the wake of the oil shock of the mid-seventies) were rapidly overcome, leaving seemingly few traces in the Swiss' perception of their economic and social system. Political debate, though active (and occasionally played out in the streets, as was the case during the youth demonstrations of the summer of 1980 in Zurich), hardly ever seemed to raise matters of major consequence for people's living conditions.

All this has been changing very rapidly since the beginning of the decade, and Switzerland is approaching the 21st century with a whole range of unprecedented questions to deal with. First among them, in most people's view, are economic problems. The system that apparently delivered unfaltering prosperity, meaning not only one of the highest per capita incomes in the world, but also unemployment rates below 1%, does not seem to be working quite as well. The economy has been in recession for some six years now, and the unemployment rate has climbed to 5.2%, with significant inter-regional differences. Part of it was traditionally blamed on the overvaluation of the Swiss Franc on international currency markets (thereby hampering exports, which account for about half of Switzerland's GDP—a very high value by any reckoning) but even the recent, yet significant drop in the foreign value of the currency has failed to boost exports. Obviously, Switzerland is coming to realize that deep-seated structural changes are necessary.

While many of these changes are difficult, if only because they question many facets of economic and social life, there is a clear determination to come to grips with them. It is beyond the scope of this paper to describe the deeper psychological and cultural levels at which such evolution is currently taking place; but there is no doubt that it is reflected in the education system, including higher education. Some ongoing changes have been described above; plenty more may be in the offing. For example, the Swiss University Conference has recently announced plans to review the distribution of federal structural funds to universities (as opposed to earmarked research funds). Traditionally, these funds (currently in the region of SFr. 600m per year) were apportioned independently of cost effectiveness, on the basis of factors such as universities' enrolment. In the future, universities' performance may also be a decisive factor in access to funds. This shift is obviously intended to keep institutions of higher learning on their toes, and hence to make them more responsive to change. Change is, in short, a central aspect of present-day Switzerland.

This observation, however, should not be construed into an uncritical endorsement of reform and change for its own sake. The fact that changes are taking place—and that adaptation to these changes is necessary—does not mean that all changes are for the better. Even international financiers who can hardly be accused of cramped-up conservatism are warning us against an uncritical adaptation to the demands apparently made on individuals and societies by globalization (Soros, 1997). In other words, adaptation to change must primarily be viewed as a politically-determined (and democratic) process. The same is true of reforms, in higher education and everywhere else.

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Trends in University Reform in the Context of Massification*

S. Gopinathan and Susan B. Morriss
Nanyang Technological University

I. INTRODUCTION

As with all recently developed countries, Singapore places a high premium on the contribution of skilled manpower to social development and economic growth. In Singapore, this is especially significant as it is a small island with no natural resources except a strategic location and a deep harbour. The colonial authorities paid little attention to the development of post-secondary education and when the University of Malaya was established, it was intended to serve both Malaya and Singapore. Later, the rapid increases in secondary enrolment and high economic growth in the 1970s and 1980s spurred the demand for more university places. Government policy was essentially one of caution, not expanding university places too quickly and streaming students into polytechnic education to fill the skill needs of a growing economy. As a consequence of this policy decision, students entering tertiary institutions in Singapore are less diverse in academic ability than those found in other countries. The competition for university places is intense and has enabled the institutions to be selective. Singapore's second university, Nanyang Technological University, was only established in 1991 and recent policy has a target of providing places for 20 percent of the age cohort in the universities and 40 percent in the polytechnics. Thus, in comparison with developed countries, the tertiary component of post-secondary education in Singapore may not constitute mass higher education.

There is some difficulty when applying the concept of massification to Singapore's higher education system. If enrolment in the two universities and the number of students studying overseas is taken into account, the percentage probably exceeds 20 percent. However, Singapore's undergraduates meet stringent selection criteria and there is negligible dropout. In contrast, the high percentages for the United States mask large variations in enrolment criteria and a high dropout rate.

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*Paper presented as a Country Report, Singapore

Notwithstanding the above, the higher education sector in Singapore faces a number of challenges somewhat similar to those found in other countries. There is great concern about ensuring high quality teaching and research in order to justify the quantity of resources expended on the tertiary sector. Students and their future employers have high expectations. The dynamic nature of the information-based economy requires that students be creative. Universities in Singapore have experienced steady growth in student numbers and have had to cope with newly emergent, and often inter-disciplinary, knowledge forms, e.g. management computing. The recognition of faculty expertise by industry has resulted in development of consultancies, new linkages with industry, and establishment of university-funded companies to market innovations. The triumph of the market ideology also has resulted in universities having to prove that they provide services at reasonable cost and to institute procedures to demonstrate a commitment to quality and effectiveness.

This report provides an account of how some of these issues relevant to higher education massification and rethinking of the role and procedures of the university have affected Singapore. The paper begins with an historical account of higher education development in Singapore. Consideration of the massification issues facing Singapore are addressed. Data are provided on the growth in enrolment, Singapore's good record in female access to higher education, and changes in the distribution of enrolment across disciplines. It should be noted that in providing information on higher education, data relating to polytechnic students is included. Students enter polytechnics with 10 to 12 years of schooling and graduates complete between 13 to 15 years of education. University graduates complete 15 to 16 years of education. Thus, a total picture of post-secondary education is given that is comparable to the educational levels attainable in other countries. The increasing commitment of the universities to research and development and to post-graduate programmes also is documented. Next, the discussion turns to reforms in academic and administrative areas and deals with the concept of the university as an instrument of economic policy and the belief that careful management is essential to maximising the universitys productive contribution to the economy.

A. Geography and Society

The Republic of Singapore is a small island state with a total land area of approximately 640 square kilometres. The country is located approximately 140 kilometres north of the equator at the tip of the Malay Peninsula. As of 1996, Singapore had a resident population comprised of Singapore citizens and permanent residents, of approximately 3 million people. The mixture of little land area and high population density has resulted in a very urbanised environment. The ethnicity of the population is primarily Chinese, 78 percent; Malay, 14 percent; and Indian, 7 percent with official languages of Malay, Chinese (Mandarin), Tamil and English. Malay is the national language and English is the language of administration and business. About half of the population is multilingual and the literacy rate is over 90 percent.

Although Singapore is one of the smallest countries in Southeast Asia, its economy has become one of the most prosperous; an amazing feat since Singapore's sole natural resource is its deep-water port. The growth resulted from concerted government efforts to expand and diversify development and to optimise the use of its primary asset, human resources. The combination of political stability, advantageous government policies, and economic growth has given Singapore's population a high standard of living. Education, health, and social services are comparable to those of many developed countries. Unemployment is virtually non-existent. Maximising the use of its human resources through education and training is a priority for Singapore.

B. Singapore's Education System

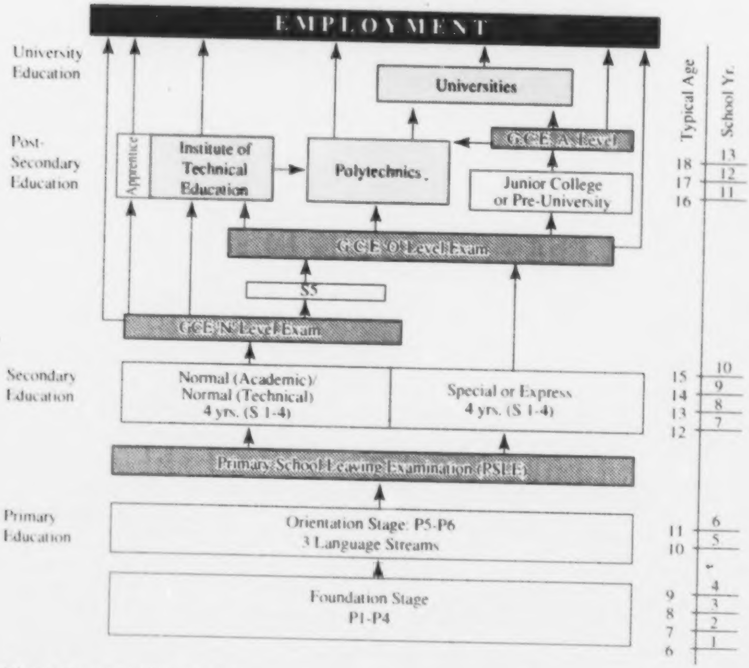
The main policy objective for the Singapore education system is to bring out the best in every pupil and to develop sound moral values, good citizenship, and the skills necessary to meet the demands of a rapidly changing world (Principals Handbook, 1993). The national curriculum strives to achieve these goals. Figure 1, Singapore's Education System, summarises the various educational paths available to students.

Following the Singapore-Cambridge General Certificate of Education Normal (GCE N) or Ordinary (GCE O) level examinations which are taken after ten years of education, students have three options for post-secondary education depending upon their desires and qualifications. Students with appropriate N levels or O levels may enrol in the technical or commercial institutes under the Institute of Technical Education (ITE) for specialised training or certificate programmes. Students with appropriate GCE O levels may attend the polytechnics to pursue diploma courses or they may enrol in junior colleges or pre-university centres to prepare for the Singapore-Cambridge General Certificate of Education Advanced

(GCE A) level examination. Although, junior colleges may be considered part of post-secondary education, no diplomas or degrees are awarded. The course work focuses on requirements for the GCE A level subjects. These studies provide the type of general education that frequently is found in the first year of university education in other countries. Results on the GCE A level examination determine the students eligibility for higher education.

Figure 1
The Education System in Singapore

Singapore's Education System


EMPLOYMENT
University Education
Universities
Post-Secondary Education
Apprentice
Institute of Technical Education
Polytechnics
G.C.E 'A' Level
Junior College or Pre-University
G.C.E 'O' Level Exam
S5
GCE 'N' Level Exam
Secondary Education
Normal (Academic)/ Normal (Technical) 4 yrs. (S 1-4)
Special or Express 4 yrs. (S 1-4)
Primary School Leaving Examination (PSLE)
Primary Education
Orientation Stage: P5-P6 3 Language Streams
Foundation Stage P1-P4
Typical Age
School Yr.
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Adapted from: Tan, 1991, Annex A

II. HIGHER EDUCATION SYSTEM

A. Historical Perspective on Public Higher Education

During Singapore's 19th century colonial period, education at all levels for local people had a low priority. It was not until 1905 that higher education was successfully established with the opening of the King Edward VII Medical College. The college was granted licentiate status in 1916 and eventually offered dentistry and pharmacy courses as well as medicine. The first liberal arts institution, Raffles College, began admitting students in 1928. Most graduates entered careers in secondary school teaching or the civil service (Seah, 1979).

In anticipation of de-colonisation after the end of World War II, interest in higher education increased. In 1948, the Carr-Saunders Commission recommended the merger of King Edward VII Medical College and Raffles College. As a result, the University of Malaya was established in 1949 (Gopinathan, 1992). The university served Singapore, British Malaya and the Borneo Territories for ten years. In 1959, an additional campus was established in Kuala Lumpur to serve the needs of the newly independent Federation of Malaya. By 1962, the different political and social environments of the two campuses resulted in the establishment of separate universities and the University of Singapore came into being (Gopinathan, 1992). While the university was designed to produce degree-holders, as the only institution of higher education, it retained responsibility for training of students in technical and administrative skills (Seah, 1979). In addition, the university only served students from English-medium schools.

Non-English schooling received little official attention from the British colonial administration. Vernacular schools existed, primarily serving the Chinese community. However, tertiary education had to be pursued outside Singapore, usually at a university in China. After Word War II, this option was further limited as China came under communist control. In response to this situation, community leaders established the Chinese-medium Nanyang University which enrolled its first students in 1956. It had three colleges offering arts, science, and commerce. From the beginning, the university encountered many problems, including a politicised administration, poor quality academic staff, left-wing student agitation, and low academic standards. Recognition of its degrees by the government finally occurred in 1968. In the 1970s, declining enrolment became an additional problem as the number of Chinese-medium secondary school students decreased and as more of these students attended the University of Singapore or a foreign university. In 1980, following recommendations by Sir Frederick Dainton in his Report on University Education in Singapore, Nanyang University and the University of Singapore were merged to form the National University of Singapore (NUS). (Gopinathan, 1992; Seah, 1979; Tan, 1997)

Following the creation of NUS, Nanyang Technological Institute (NTI) was established on the Nanyang University campus to train practice-oriented engineers. As Gopinathan (1992) noted, the Minister of Education perceived NTIs role as the production of highly skilled manpower needed for the sophisticated, capital-intensive, high value-added industries that will figure prominently in our economy in the 1990s (p. 3). NTI was associated with NUSs faculty of engineering and graduates received NUS degrees. The NUS School of Accountancy was transferred to NTI in academic year 1987-88 to balance the male/female ratio (Nanyang Technological University, 1989). In 1991, following a second report by Lord Dainton, NTI was reconstituted and renamed as the Nanyang Technological University (NTU). NTU was to become Singapore's second comprehensive university. It had become clear that the first Dainton report had underestimated the economic and social demand for higher education (Tan, 1997).

Two other institutions, the Institute of Education and the College of Physical Education also became part of NTU at this time, as the National Institute of Education. Both institutions had served as teacher-training centres. The Institute of Education was established in 1973, although its origin was in the Teachers Training College founded in 1951. The College of Physical Education was created in 1984. By combining these institutions, the National Institute of Education became Singapore's sole teacher-training organisation.

Another significant development of the 1990s at the university level is the establishment of an Open University to serve working adults who could not attend tertiary education earlier in life. In 1991 the government began planning for such an institution. As the plans coalesced, the privately-run Singapore Institute of Management was selected to administer the Open University programmes offered in affiliation with the British Open University. The Open University began admitting students in January 1994.

Post-war diploma-level education began with the establishment of the Singapore Polytechnic in 1958. The institution offered English-medium instruction in technical and management skills. Its mission of providing middle-level personnel to support Singapore's technological, economic, and social development continues to the present. In 1968 Ngee Ann College, which had origins similar to Nanyang University, became a public educational institution offering diplomas in engineering and commerce. It became Ngee Ann Polytechnic in 1982. Two additional polytechnics were opened in the 1990s, Temasek Polytechnic in 1990 and Nanyang Polytechnic in 1992. These new polytechnics offer some new courses, such as design, nursing, and other health science areas, in addition to the usual programmes in engineering, technology, and business studies.

B. Private Higher Education

The non-public sector of higher education developed as a diverse, and numerous, set of private institutions, professional organisations, and quasi-governmental bodies which helped meet the demand for higher education qualifications. Higher education courses available through the private sector must be approved by the Ministry of Education. The approval process ensures provision of appropriate facilities and management structure as well as evaluating the content, but not necessarily the quality, of the programme. The providers usually are independent, self-regulated, and self-financing; they may or may not be for-profit. Private institutions provide a wide range of educational opportunities, including correspondence and tutoring schools, as well as diploma and certificate programmes.

Of the non-profit, private organisations, the Singapore Institute of Management (SIM) is the most dominant. It was founded in 1964 by a group of senior executives from various sectors to provide management training (Tan, 1997). SIM provides access to doctoral, master, and bachelor degree courses in business and management areas in collaboration with overseas universities from Australia, the United Kingdom, and the United States. Qualifications are awarded in the name of the sponsoring university. In addition, diploma and certificate programmes in management and information technology, as well as human resource development programmes and services, are provided. Most programmes are offered on a part-time basis. The Institute also co-ordinates the Open University programme mentioned previously.

Professional organisations, such as the Singapore Hotel Association Training and Education Centre, Singapore Insurance Institute, and the Institute of Certified Public Accountants of Singapore, and quasi-governmental bodies, such as the National Maritime Academy and the SEAMEO Regional Language Centre also offer specialised diploma and certificate programmes. These programmes meet requirements and standards set by the professional group. The SEAMEO Regional Language Centre is the only non-public institution to offer a degree programme in its own name, a Master of Arts in Applied Linguistics.

For-profit higher education organisations are a more recent development. Among these companies are Informatics, Asia-Pacific Management Institute, and International Business and Management Education Centre. All focus on computing and business courses or training, often offered on a part-time basis. The qualifications for diplomas and degrees again reside with the foreign universities working with these companies.

C. Higher Education and Manpower Planning

As previously noted, the economic expansion of Singapore is an integral aspect of higher education development (Cheung, 1994; Low, 1991; Tan, 1997; Seah, 1979). Over the last twenty years, the education system has been moulded to support Singapore's growing economy and its related manpower requirements. The development of human resources is the focus at all levels. Since the 1980s economic reports have emphasised that higher education institutions were crucial to Singapore's competitiveness in the global economy (Tan, 1997, p. 2). Economic demand for manpower has been the motive for the expansion of higher education opportunities at all levels. As the Vice Chancellor of the National University of Singapore noted in his 1980-81 Annual Report:

> With the countrys present declared policy of sustaining economic growth through a restructured high-technology economy, the University must help supply the manpower for the required skilled and highly trained workforce (National University of Singapore, 1981, p. 2).

The following statement from the Minister of Education clarifies the context of the role of higher education in Singapore:

> Singapore is a young nation . . . Our economy has an insatiable demand for technological and professional manpower. For the present, I do not see any escape from the necessity to gear tertiary education to the demand of the market. Much as many may lament the decline of humanistic or liberal education and the ascendancy of professional and technical studies, our priorities do not permit any other course, students want it, society needs it and higher education should provide it (Tan, 1990, p. 48).

This perspective continues. In his statement on the 1995 budget, the Minister for Finance discussed education and its goals:

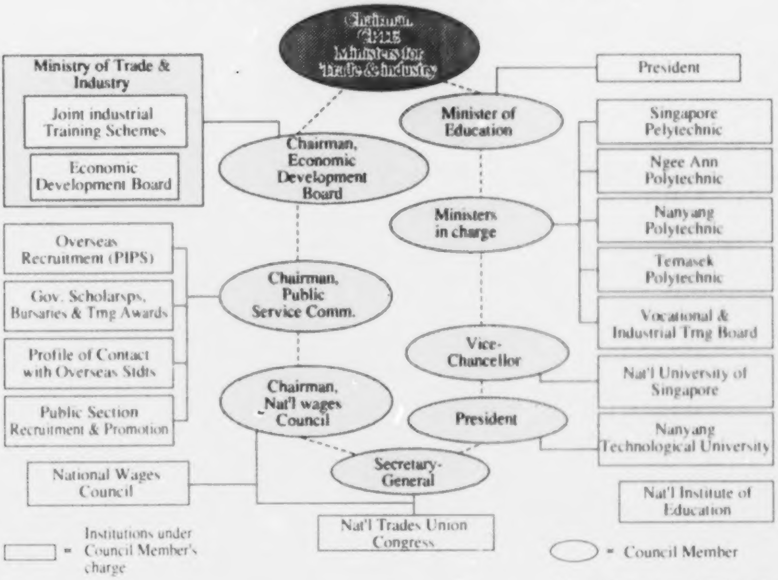
> In Singapore, we have taken steps to meet the demands of a modern economy by investing heavily in education . . . Over the years, we have increased the proportion of our young people going into tertiary education. In 1980 19

> percent of our young people were admitted to university, polytechnic or the then Vocational and Industrial Training Board. In 1994, the proportion was 71 percent, with 19 percent going to the university and 35 percent to polytechnic . . . We aim to raise the proportion of those with post-secondary training from the 71 percent in 1994 to 85 percent . . . (Hu, 1995, p. 6)

Since 1979, the Council for Professional and Technical Education (CPTE) has linked all governmental entities dealing with education and manpower planning to ensure an adequate supply of trained manpower for Singapore. Figure 2 presents the composition of the CPTE and indicates the broad coverage of interests represented on the CPTE. The CPTE projects and recommends enrolment targets for the universities, polytechnics, and vocational institutes based primarily on manpower studies and annual surveys of graduate employment. The recommendations are quantitative and qualitative, and cover standards, curricula,staffing levels, and enrolment numbers. (Low, 1991, p. 61)

Figure 2
Composition of the CPTE

Council of Professional and Technical Education


Chairman, CPTE Ministers for Trade & Industry
Ministry of Trade & Industry
Joint industrial Training Schemes
Economic Development Board
President
Minister of Education
Chairman, Economic Development Board
Singapore Pelytechnic
Ngee Ann Polytechnic
Nanyang Polytechnic
Temasek Polytechnic
Vocational & Industrial Trng Board
Ministers in charge
Overseas Recruitment (PIPS)
Gov. Scholarsps, Bursaries & Trng Awards
Profile of Contact with Overseas Stdts
Public Section Recruitment & Promotion
Chairman, Public Service Comm.
Vice-Chancellor
Nat'l University of Singapore
Chairman, Nat'l wages Council
President
Nanyang Technological University
National Wages Council
Secretary-General
Nat'l Institute of Education
Nat'l Trades Union Congress
= Institutions under Council Member's charge
= Council Member

Adapted from Low, 1992, p. 62

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The success of the model was supported in the 1995 World Competitiveness Report. Singapore's education system was rated first in the world on its ability to meet the needs of a competitive economy (Bevan, et al, 1996). However, as of 1994, Singapore still had a relatively low percentage, only nine percent, of its population with degrees or diplomas. As a percentage of the workforce, the percentage reaches 16 percent. When all post-secondary education is included, the percentage increases to 27 percent. This level is still well below that found in Britain, 63 percent; Japan, 79 percent; South Korea, 60 percent; Taiwan, 52 percent; or the United States, 88 percent (George, 1996). Recognising that this percentage is not conducive to current economic goals, the CPTE set the following goals for higher education to achieve by the year 2000:

- 20 percent of each cohort to attend universities,
- 40 percent of each cohort to attend polytechnics, and
- 25 percent of each cohort to attend technical courses.

As of 1996, these goals were close to achievement for the universities and the polytechnics.

But the government has additional expectations relating to the role of the universities in economic development. The universities are considered to be a potential source of innovations in science and technology that lead to the evolution of new patents and products. In addition, the universities should provide leadership for and enhancement of intellectual vitality of Singapore. Prime Minister Goh indicated in September 1996 that NUS and NTU should gain a reputation for excellence and strive to be among the top universities in the Asia-Pacific region, thus helping Singapore become a cosmopolitan, vibrant, and gracious city. To achieve this vision, NUS and NTU should:

1. Excel in teaching and providing an education that develops professional capabilities and nurtures future leaders,
2. Become centres of research, technology, and intellectual activity, and
3. Develop alumni relationships to expand resources and enhance reputations. (Chua, 1996).

The appointment in January 1997 of Dr Tony Tan, a former Minister for Education and presently a Deputy Prime Minister, as minister in charge of Universities ensures that positive steps will be taken to achieve the goals.

III. CHALLENGES FOR HIGHER EDUCATION

In this section, consideration is given to issues facing Singapore that also may be common to countries facing the impact of massification. Among the challenges are various enrolment trends, an expanding supply of students qualified for higher education, and public funding support.

A. Student Enrolment Trends

1. Overview

Figure 3
Enrolment Trends in Higher Education

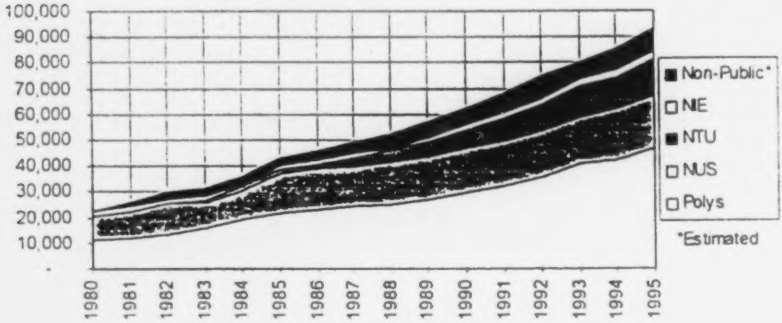


Figure 3, Enrolment Trends in Higher Education, illustrates the rapid growth in student numbers since 1980. Total enrolment in public and private sectors of higher education has increased by 244 percent during the 15-year period. Growth for the individual sectors is shown below.

Table 1
Enrolment Growth by Sector for Selected Periods

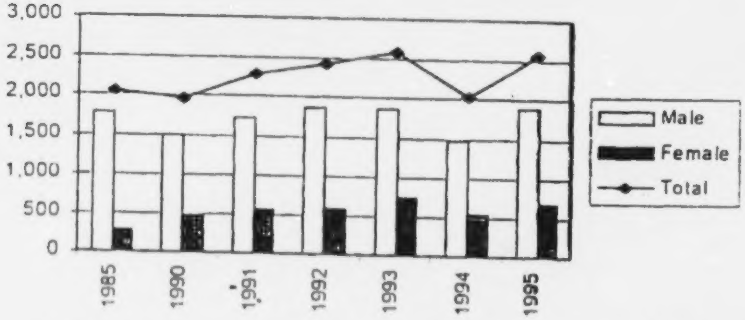
	Polytechnics	Universities	Non-Public*
1981-95	291%	199% --	
1981-85	80%	48% --	
1986-90	29%	34%	91%
1991-95	45%	32%	78%

*Estimated

In 1980, student enrolment at the polytechnics and the universities was quite similar, approximately 11,100 and 11,500 students respectively. By 1995, the polytechnics had outpaced the universities, enrolling 46,800 students versus 37,100 at the universities.

The vast majority of public higher education students study on a full-time basis although the number of part-time students has increased slowly as more opportunities become available. As shown in Figure 4, between 1990 and 1995, there was a 31 percent increase in part-time enrolment.

Figure 4
Part-time Students Admitted to Public Higher Education Institutions by Gender

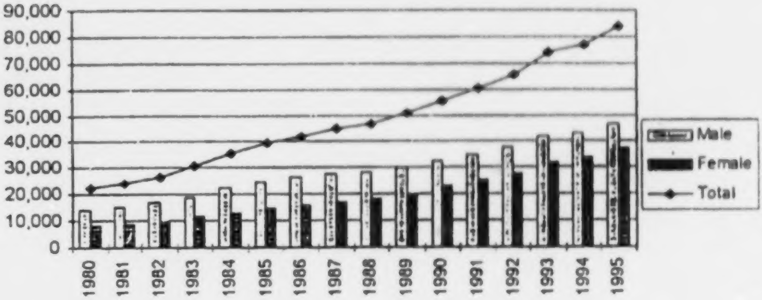


In the private sector the situation is reversed. The majority of students study on a part-time basis while they work full-time. Data for 1993 and 1994 put total enrolment in degree and diploma programmes at the Singapore Institute of Management at 6,508 and 6,999 respectively (SIM, 1993, 1994). This enrolment at one private institution more than triples the number of students studying on a part-time basis, although some full-time students are included in the total. A survey conducted in 1995 indicates even more wide-spread part-time participation in higher education. The study suggests that 10 percent of Singaporeans aged 20 to 49 years or 120,000 people are taking courses leading to formal qualifications (Ng, 1995). Given the nature of the projection, the information has not been included in Figures 3 or 4.

2. Enrolment Distributions by Gender

Access to public higher education for females increased over the last three decades. In 1970, females made up 31 percent of the total student population. By 1980, they comprised 38 percent and in 1995, 44 percent. Figure 5 illustrates this trend.

Figure 5
Total Enrolment in Public Higher Education by Gender



When enrolment is separated into the different types of institutions, more distinctive patterns emerge. These patterns are shown in Table 2. A steady and significant increase in the percentage of females attending the polytechnics occurred while the percentage at the universities was very stable after 1975. At the NIE (and its precursor, the Institute of Education), the percentage showed more fluctuation.

3. Enrolment and Disciplines

The distributions of enrolment across the various disciplines offered at the universities and the polytechnics are presented in Figures 6A and 6B respectively. NIE and its teacher education programmes are included as a separate entry with the university disciplines.

Figure 6A
Combined Admissions to University Disciplines

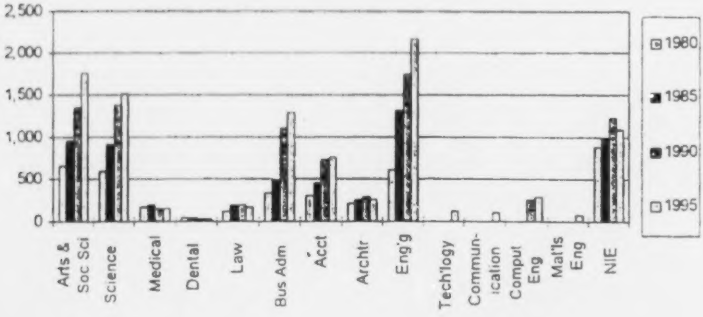
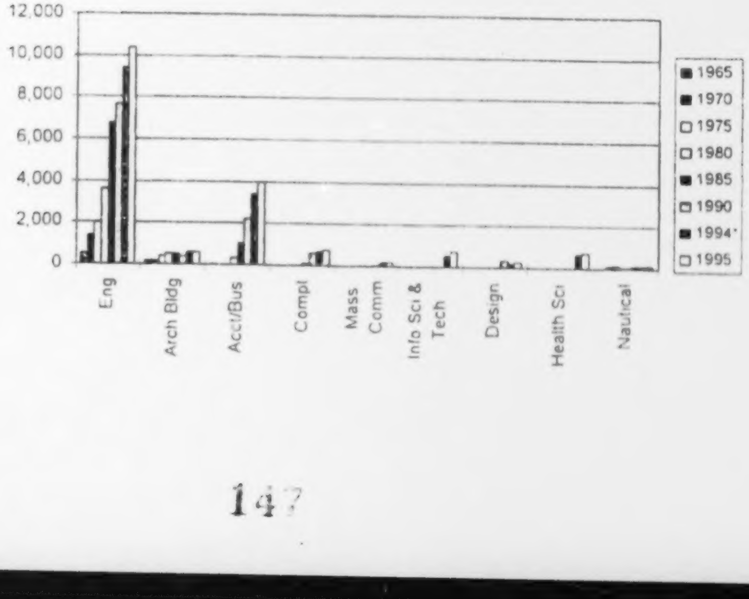


Table 2
Percentage of Female Students

	Polytechnics	NIE	NUS/NTU
1970	8%	69%	35%
1975	19%	79%	44%
1980	22%	85%	44%
1985	27%	78%	47%
1990	35%	76%	47%
1995	42%	73%	46%

A review of the data relating to university-level studies indicates the greater and increasing importance of technical and professional studies. In 1995, admissions to engineering, business, education, and science programmes accounted for 73 percent of the total. Arts and social science programmes represented only 18 percent. As expected of polytechnics, engineering and business programmes made up over 80 percent of admissions in 1995. Thus, the employment orientation and linkage to economic development are apparent in the disciplinary offerings and enrolment at both types of institutions in Singapore, suggesting a close fit between manpower policies and university enrolment practices.

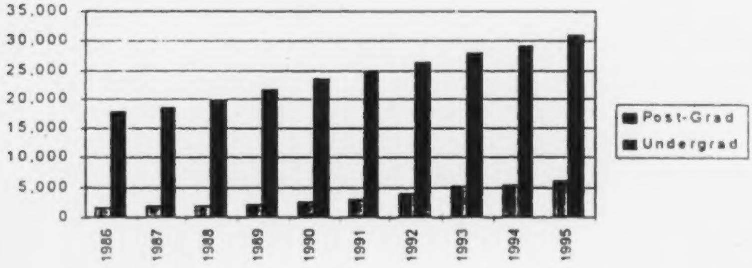
Figure 6B
Students Admitted by Course at Polytechnics



4. Increasing Importance of Post-graduate Students

As a percentage of total university enrolment, post-graduate students increased from only 4 percent to 10 percent between 1981 and 1990, and reached 17 percent in 1995. Figure 7 shows the actual growth in post-graduate student enrolment. The increase is related to an expanded number of post-graduate courses and the intensifying of the research focus of both universities. The universities launched 53 new postgraduate programmes between 1980 and 1995. Over the same time period, 46 new research centres or institutes were opened by the universities. The new degree areas and centres tend to emphasise technological and international innovations in support of economic foci (See Appendix A). In addition, the centres and institutes facilitate co-operation between the universities and the private sector as well as quasi-governmental organisations such as the National Science and Technology Board and the National Computer Board.

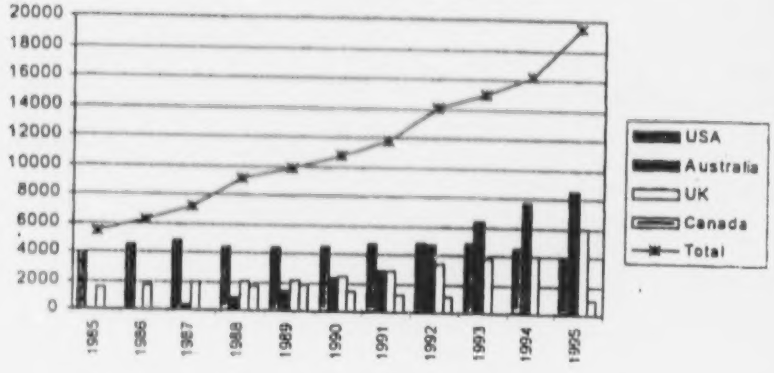
Figure 7
Increase in Post-Graduate Students



5. Overseas Study

Data on overseas students are available only from 1985. As shown in Figure 8, between 1985 and 1995, steadily increasing numbers of students chose to study overseas even though the number of places available at Singaporean universities grew at the same time. In 1995 approximately 19,500 students were studying abroad at a variety of higher educational institutions, including universities. Over the ten-year period, the numbers increased by 259 percent, with an 66 percent increase between 1991 and 1995.

Figure 8
Singaporean Students Studying Overseas



Various reasons for the increasing numbers are proposed (Smart & Ang, 1995; Selvaratnam, 1994). Given the current full-employment situation and the push to move into an economy dominated by the technology and service sectors, degrees still bring a high rate of return on investment to Singaporeans. This rate of return appears to hold even for study overseas. An related aspect is Singapore's move to economic globalisation or internationalisation, which makes both study and working away from Singapore more acceptable and no longer seen as a brain drain.

Another factor may be that as the number of polytechnic graduates has grown, so has the number of diploma holders wishing to attain degree qualifications. While the opportunities in Singapore have expanded through increased admission of polytechnic graduates to the universities and the initiation of the Open University, the number of places is growing more slowly than the number of graduates.

Lastly, as the populace has become more affluent, it is easier for students who are not admitted to the faculty of their choice at NUS or NTU to study abroad in their area of interest. Reflecting concerns about the quality of overseas study and the possibility of over-supply in certain fields, the government has put some limits on the recognition of overseas degrees in law and medicine. In law, external degrees will be no longer be recognised after 1996. In medicine, the number of universities deemed acceptable has been reduced significantly, primarily to the top universities in Australia, the United Kingdom, and the United States.

Another aspect related to overseas study is the recent provision enabling students to earn credits abroad. University authorities recognise the need to expose students, especially bright students, to overseas university environments during their undergraduate years. Such study abroad enriches student learning and broadens perspectives. About 40 students have participated to date in overseas study through the NTU International Student Exchange Programme and students attending the overseas partner universities have attended courses at NTU. Following upon the recommendations of Sir Eric Ash, former Rector of Imperial College, UK it is likely that efforts to attract international students to NTU will be rapidly increased.

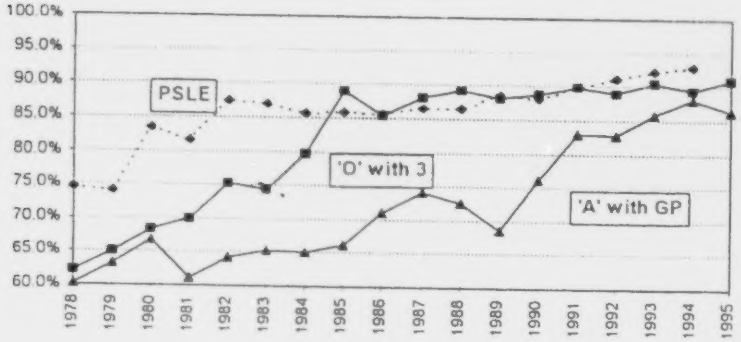
B. Demand for Higher Education

A prerequisite for shifting from elite to mass education is an adequate supply of qualified candidates for higher education. As shown in Figure 9, steady improvements in the pass rate of the O level examination occurred until 1985. The rate stayed between 85-90 percent over the next 10 years. A level pass rates increased rapidly from 1989. With no announced change in the A level examination, it must be assumed that the curricula and instruction in the 1990s produced students more able to succeed in the examination and more students desirous of entering higher education.

During the 1980s, the number of students to be admitted to the university was carefully defined. As documented by Seah (1983, p. 20), NUS was projected to grow between 12 and 16 percent annually for the first years of the decade. Then enrolment would stabilise and grow at less than one percent per year. The decade would average about four percent growth annually. This plan did not match the Ministry of Trade and Industry (MTI) manpower need projections exactly, but the final difference for the period was only about one percent lower.

In actuality, the growth rate for the period (as shown previously, in figure 3) averaged an annual growth of over eight percent, far exceeding expectations. The deviation from the plan began in 1984 and continued through the end of the decade. Ultimately admissions exceeded NUS plans and MTI projected demand by more than 15 percent. Of course, the plan and projections reflected the perspective at the beginning of the decade. Revisions occurred throughout the period in order to incorporate changing demand and to approve the increased number of enrolments. The comparison does indicate that the shift in demand was fairly rapid and that the government and the universities were able to respond relatively quickly.

Figure 9
Pass Rates on the PSLE, "O" Levels and "A" Levels

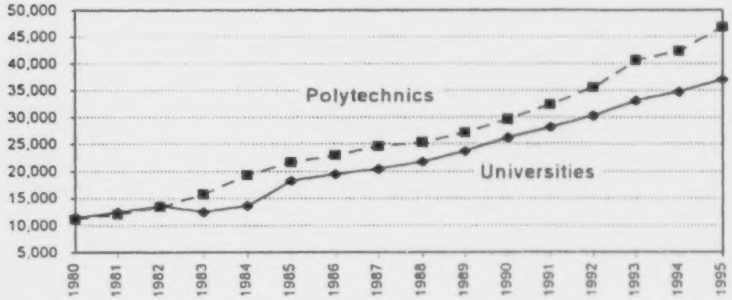


By the end of the decade, the recommendation from Lord Dainton (1989) was to expand NUS/NTI into two strong university level institutions by the year 2000 (p. 11). As shown in the discussions of enrolment and disciplines, it is apparent that this recommendation was met by the mid-1990s.

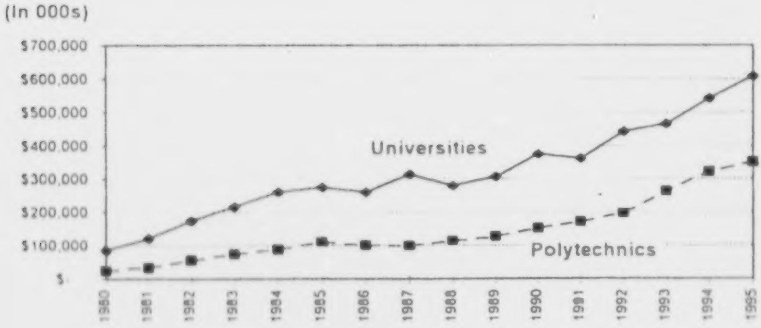
C. Public Funding Support

The expansion of higher education requires significant new investment of resources. A review of the funding situation reveals that such increases occurred. Figure 10A, Enrolment and Funding by Higher Education Sector, displays the trends for the polytechnics and universities since 1980. Enrolment is repeated to add context. Recurrent expenditures are used to represent funding and exclude development costs. Both sectors exhibited steady growth in funding over the period with only occasional, slight downturns. Figure 10B, Annual Percentage Change in Enrolment and Funding by Sector, presents a different perspective on the shifts in enrolment and funding.

Figure 10A
Enrolment Trends



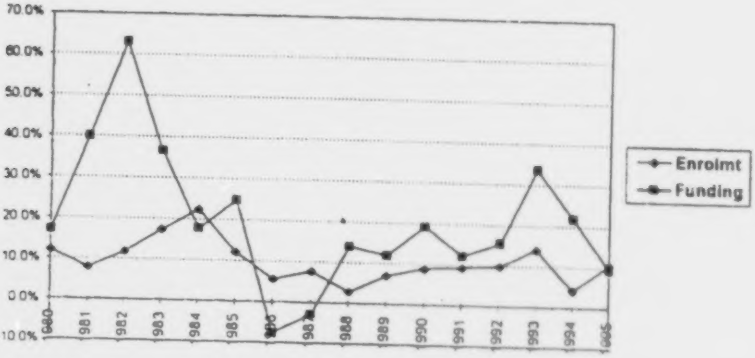
Funding Trends



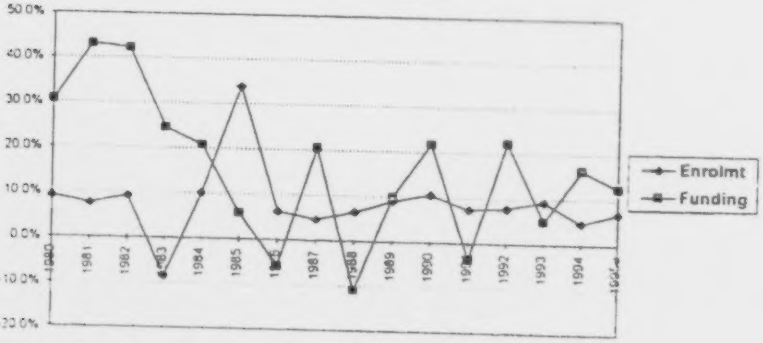
The polytechnics averaged about ten percent annual growth in enrolment and a 21 percent annual growth in funding. Funding more than doubled from $170 million to $351 million between 1991 and 1995. The opening of two new institutions accounted for about $100 million of the increase. Since 1980 the annual rate of enrolment growth at the universities averaged over eight percent, slightly less than the polytechnics. Funding for the universities also increased rapidly, averaging a 15 percent increase per year. From 1991 to 1995, support climbed by nearly 70 percent, from $362 million to $609 million. Although growth is common to both sectors, the universities exhibited greater variation in annual changes than do the polytechnics. Growth in funding was not as steady and tended to reverse direction about every second year.

Figure 10B

The Polytechnics

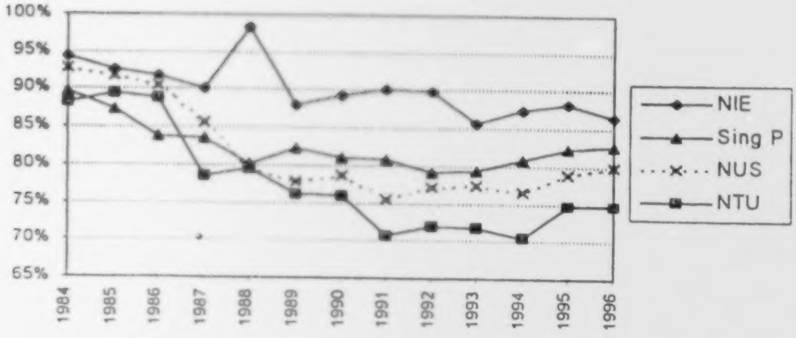


The Universities



Another aspect of public funding is the translation of this support into government subsidy of the total cost of education and its relation to student payments. In 1995, the government subsidy at polytechnics was about 82 percent of the cost, approximately $8,400. The subsidy has been about 80 percent since 1988. At the university level, the subsidy varies by institution, ranging from 70 to 87 percent of total cost. Figure 11 illustrates the relative stability of the subsidies. In 1995, the average government subsidy was lowest at Nanyang Technological University at $14,600, $15,500 at National University of Singapore, and highest at the National Institute of Education ($20,200). The subsidy also differs by programme within each institution. Thus, the NUS average includes high-cost programmes such as medicine and dentistry.

Figure 11
Percentage of Government Subsidy for Tertiary Education



From 1989 onwards, the government has indicated a long-term goal of reducing the subsidy to 70-75 percent of operating costs (Selvaratnam, 1994, p. 81). Student fees have increased but these increases have not significantly altered the subsidy percentages. Thus, the cost of education has not become an access issue. In addition, low-interest loans and other special assistance programmes have been made available to low-income students.

IV. HIGHER EDUCATION REFORMS

The previous section discussed the challenges facing higher education such as expanding demand for education and adequacy of governmental funding support. The perspective emphasised the external environment. In the next section, the focus is on the internal impacts of the challenges, on how higher education has responded, and what the future may hold. This discussion separates instructional and research aspects of these reforms from administrative changes.

A. Academic and Research Issues

1. Curriculum Reforms

Both universities have recognised the need to keep the knowledge and skills they teach current and relevant. It is not possible to detail all the changes and refinements to curriculum undertaken in the past decade. The key point to be made is that curriculum change in Singapore is driven not so much by diversity in student ability as in the need to maintain manpower that is adaptable and well trained. One major innovation of the 1990s was the introduction of the modular system at NUS and the academic unit system at NTU.

Singapore's universities are based on the British model which emphasises an in-depth study of a subject with all courses within a subject to be taken by all the students in a cohort. End-of-year written examinations are the preferred mode of assessment. However, with the realisation that job requirements are becoming increasingly more complex and the need to allow more scope in curriculum selection on the basis of student interest and aptitude, the US-style modular or credit system has been adopted. Under the new system, students are to some extent able to customise programme offerings, vary the pace at which the programme components are completed, and sample content from other discipline areas. End of semester examinations promote more focused learning and more reliable assessment of understanding. An additional benefit of the modular system is its ability to accommodate special opportunities for students, such as study abroad, internships, and special project assignments. However, typical of Singapore's cautionary style this does not represent a complete shift to a US-style curriculum. Students at NTU are still required to study core and prescribed modules to ensure a solid understanding of the foundation knowledge of a discipline.

Another curriculum reform also addresses the issue of complexity in job requirements. NTU offers some specialisations that combine a major subject area, e.g. engineering, with a minor in a distinctively different area, e.g. business. The aim of the new course is to expand learning opportunities for bright engineering students by providing an introduction to business and management alongside the engineering curriculum. Such combinations anticipate career trends in the post-qualification phase and offer capable students better career mobility.

At NUS, an accelerated Master of Engineering programme is available for top engineering students. Students with high academic potential are able to obtain their bachelors and masters degrees within 4 1/2 years. These students undertake a demanding final-year undergraduate research project which may subsequently be upgraded to a Masters level project. Likewise, NTU offers three accelerated Masters programmes which allow students to graduate with a B.Eng. or a BA Sc.(Hons) and Master of Philosophy or Master of Science within a similar frame (NTU News, April 1996).

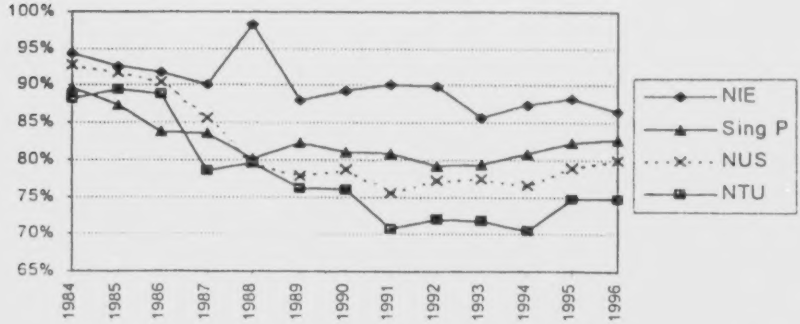
The universities also recognise that, especially in the early undergraduate years, students must develop skills that will enable them to be independent, critical and analytical learners. At the National University of Singapore, all first-year Arts and Social Science students must take a compulsory foundations course. The course exposes the students to critical and analytical thinking, creative writing, and time and stress management and aims to help students adjust well to the new intellectual and social demands of undergraduate life.

2. Maintenance of Student-Faculty Ratios

Rapid increases in enrolment may result in dramatic shifts in the student-faculty ratio since higher education usually can not add faculty as quickly as it adds students. Although Singapore higher education did see change in the ratios with enrolment growth, these changes were not severe or sudden. Figure 12 indicates that the ratio moved from about 9:1 in 1981 to 10:1 in 1990. In 1994, it reached almost 12:1, but declined to 11:1 in 1995. The minimal changes suggest that responses and resources were adequate and faculty recruitment efforts successful enough to maintain an acceptable student-faculty ratio on average. Problems may have occurred within individual programmes, particularly new programmes or highly popular courses.

In addition, since the 1980s, the universities have initiated programmes to develop faculty members from within by identifying promising students and recruiting them into higher degree programmes. The process may involve going overseas for further study and, upon return, serving as a faculty member at the sponsoring university.

Figure 12
Student-Faculty Ratios



3. Quality of instruction

Both universities are committed to providing students with excellent instruction. NTU recognised that while faculty may have demonstrated their ability to do research by obtaining a doctoral degree, this does not necessarily mean that they are able to teach well and established the Centre for Educational Development to assist faculty. Likewise, NUS has the Centre for the Development of Teaching and Learning.

In 1993, the NTU National Institute of Education launched a one-year part-time Post-graduate Diploma of Teaching in Higher Education. This diploma is open to academic staff from the two universities and the four polytechnics. The programme enables participants to learn about and discuss strategies that will promote deep learning, creativity and reflectivity among students. Five core modules of 20 hours each constitute the course of study. Three compulsory core modules focus on the related features of learning and teaching in higher education, on the role of motivation in promoting learning and on the assessment of learning in tertiary institutions. Two elective modules build on the core to meet the more specific needs of participants. The primary measure of assessment is a project report which is closely tailored to the students work responsibilities. Students examine a problem or issue drawn from their instructional context and develop solutions for practice and evaluation.

Another example of the universities response to the issue of teaching quality was establishment of the Teacher of the Year Award. The President of NTU, Dr Cham, pointed out that winners of the award are selected because of their sound subject knowledge, their ability to encourage their students to think and reflect, and their effort to teach students analytical and critical methods. Dr Cham noted the improvement in NTUs teaching environment since the launch of the scheme in 1994. (NTU News, July 1996)

In addition to the above schemes, the universities also provide students with an opportunity to evaluate the effectiveness of a faculty members teaching. At NTU, faculty are required to have students annually assess a lecture and a tutorial using standardised forms. This summative procedure provides teaching effectiveness data singly and in comparison with others in the school. This information is considered during the annual faculty performance review.

4. Technology in Teaching

Has the cyber-university arrived in Singapore yet? Not yet, but both universities are quickly adapting to the opportunities afforded by the power of information technologies. The new technology offers flexibility, inter-activity, retrieval of up-to-date information, and improved communication for instruction and research. Extensive efforts are ongoing to facilitate access to, and use of information technology by, faculty in the classroom or the office and by students on or off campus. The intent is to create an enriched learning environment and to provide students with adequate skills and understanding of the technology to enable them to integrate it into their work and lives.

Examples abound of faculty and student experiments and experience with different aspects of technology. At the National University of Singapore, the use of the NUS Intranet enables students to access course and research materials on-line. At the National Institute of Education, faculty have used local servers and the Internet to accomplish access to course materials and receipt of assignments. At NTU, some modules are being conducted jointly with overseas universities. The classes share faculty and are conducted in real time with live discussions. NTU engineering students are exposed to the latest advances in design and testing through technology. Technology is rapidly permeating every programme and affecting the way faculty conduct courses.

5. Role in Economic Growth

It would be fair to say that Singapore's very impressive economic growth over the past three decades was due in large part to the development policies adopted by the Singapore government. Crucial aspects of these policies included wealth creation through a process of export-led industrialisation, the creation of new institutions like the Development Bank of Singapore and the Economic Development Board, and the transformation of the higher education sector to aid the development. As noted previously, the universities role was both to train manpower, especially in the engineering and technology domains (a knowledge and skill dissemination function), and to modify and develop the indigenous technology capability that Singapore offers (a research and development function). A related function of the University from the later perspective is to facilitate technology transfer to industry. This endeavour involves movement away from discipline-centeredness toward inter-disciplinary work, the creation, via facilities and reward mechanisms, of a research oriented culture, and the induction of bright and talented students into university research-oriented activities. To this end, the universities have added various research centres and institutes and have established relationships with private organisations and public entities.

One key strategy adopted by the universities follows from Singapore's small size and manpower resources. Strategic areas are identified which will have long-term economic significance and then the R & D thrust is concentrated in these areas. Some of areas include wafer fabrication, bio-technology, speciality chemicals, and bio-informatics. For example, under the Strategic Research Programme initiative of Singapore's National Science and Technology Board, the National University of Singapore is undertaking projects in semiconductor lasers, wavelets (multimedia technology), hot-carrier effects in sub-micron chips, and micro-electro-mechanical systems. At NTU centres, such as the Centre for Graphics and Imaging Technology, the Robotics Research Centre, and the Environmental Technology Institute work in conjunction with the various engineering schools and provide opportunities for focused industry-relevant research. (National Science and Technology Board, 1992-93, 1994-95)

In spite of the clear recognition that in order to remain economically competitive Singapore must develop an adequate pool of engineering and technology expertise, it continues to face the prospect of a shortfall of engineers. In response, NTU increased its intake of first-year students and offered 600 second-year places to polytechnic graduates. Part-time mechanical and electrical engineering courses have been launched to attract those already working. Another aspect of this concern is the need to attract more women into engineering courses; the aim is to raise female enrolment from the current 15 percent of the cohort to 25 percent.

The universities are not waiting for students to come to them. They are learning to market its programmes to Junior College students via career talks and open houses on campus. NTU also organises an annual Technology Engineering Research Programme to attract talented students to join on-going engineering projects in order to stimulate research awareness and attract them early to become research workers (NTU News, April 1996). In further support of this goal, universities are encouraged to seek top students from home and abroad because their enrolment creates a virtuous circle of eminence with outstanding students and scholars adding lustre to their institution (Chua, 1996).

B. Administrative Changes

1. Establishment of the Universities Endowment Fund

One of the most important administrative innovations in the development of NUS and NTU was the launch of the University Endowment Fund by the government in 1991. The Fund received $500 million, $250 million to each university, with the government pledging up to another $250 million to match every dollar raised by NUS and NTU. Intended to support special and innovative projects, the fund will ultimately facilitate efforts to achieve international stature and aid the quest for academic excellence. It can be interpreted as the first step toward reduced reliance on government funding and greater involvement of alumni and the wider community in the universities (Funding the universities, 1991; Nanyang Technological University, 1991).

As with most endowment funds, only the interest will be used to allow the institutions to stay abreast of scientific and technological advances. These resources also provide a new flexibility and the capability to develop programmes not related to economic development (Funding the universities, 1991). In addition, the fund formalised the long-established tradition of private and corporate donations to the universities. Both universities have used endowment donations to establish professorships e.g. Lien Ying Chow Professorship in Medicine, (NUS) and the Wee Kim Wee Professorship in Communication Studies.

2. Joint Admission Processes

NUS and NTU have a joint admission process. This process serves as a management tool to meet manpower and talent distribution goals. Admission is based primarily on merit as determined by the translation of 'A' level scores into points system. In the application, candidates identify five programme choices in order of preference. Admission to a specific programme is determined mainly by the points earned and the number of places available in a particular programme.

The admission process is almost completely computerised. Selection criteria ensure that the brightest applicants are distributed across programmes. Criteria also facilitate an appropriate gender mix in programmes. A few years ago interviews were introduced to fine tune admission procedures to medical, dental, law, and architecture programmes. Interviews are being used more frequently now to evaluate the abilities of students at the break point. The polytechnics also have a joint admission process that works in a similar manner.

A recent innovation ensures that the very bright and talented are guaranteed a place in higher education. Singaporean winners of international science competitions are offered direct admission to science and engineering courses at the two universities, regardless of their 'A' level results. The scheme is seen as a tangible recognition of brilliance and a way of boosting Singapore's research and development capacity. (Nirmala, 1997). Such a move continues an earlier initiative, the Technology and Engineering Research programme. The objective of this programme is to nurture talented 'A' level students by immersing them in the universitys research culture; students in the programme act as co-researchers to university researchers. The programme is open as well to students from Asian and other countries to foster better understanding and appreciation of each others culture and technology (NTU News, July 1996).

3. Quality Assurance

Perhaps the most significant innovation in university administration has arisen from the need to ensure that universities are well managed. A number of factors contributed to this concern. In the era of massification universities have become huge, complex, and costly enterprises facing the multiple demands of teaching, research, consultancy, and public service. They consume a large share of the education budget, and when financial resources are constrained, there is pressure for accountability. Also with the domination of the market philosophy, management concepts, theories, and practices in the private sector penetrate the world of higher education. In addition, the use of audits and rankings of universities has become prevalent as a way of differentiating quality so that resources can be more rationally distributed.

Like institutions around the world, Singapore's universities also have moved to respond to these issues. The most pertinent factors in the Singapore context are those relating to the growth in complexity, the need for accountability and efficiency, and the assurance of quality in programme and process. Thus, the universities have embraced the quality framework.

One example of this effort is the academic audit initiative at NTU. The principal objectives of the academic audit initiative are the assessment of the overall quality of teaching and research and the identification of ineffective or deficient areas for prompt remedial action. Among the general principles that the Deans have adopted are that the audit should be at the macro level; that the purpose of the audit is developmental, striving to improve quality, and not judgmental; that the audit should be broad-based, examining both quantitative and qualitative aspects; and that the procedures should be acceptable to the majority of academic staff.

V. SOME ISSUES FOR SINGAPORE'S HIGHER EDUCATION SYSTEM

There are several challenges for policy makers for Singapore's higher education sector. Among them are the continued pressure for university places; the bias towards professional courses, especially those related to engineering and technology; a relatively unregulated private sector; and the push for internationalisation. Many of these concerns are, at least partially, the result of assumptions and policies that have served Singapore's higher education system well over the last 20 years, but which will need reviewing in the light of new goals for universities and changed socio-economic circumstances.

The pressure for expansion of the university places is growing. The governments participation targets of 20 percent and 40 percent of the age cohort in the universities and polytechnics are already close to being met. Singapore's booming economy continues to signal the high value of degree qualifications. Additional factors which contribute to the increasing social demand for higher education include the governments own emphasis on education and training, steadily increasing standards in secondary education, a good rate of return on investment in higher education which continues to be heavily subsidised, the increasing educational aspirations of middle class parents for their children, and significantly, levels of affluence sufficient to send children for higher education overseas. The evidence for the latter is clear in the high number of students pursuing undergraduate degrees abroad.

Not only is there significant pressure on the universities for more places for first-time participants in higher education, but there is also pressure to accommodate the needs of returning students. As the polytechnics become more successful in attracting good students, their graduates want to gain degree qualifications. They have tasted a measure of success and their claims for upgrading will become harder to resist. Already polytechnics are positioning themselves to ensure that their students are able to obtain advanced placement in local and overseas universities. Singapore's two universities offer very few opportunities for older students to study for a degree in contrast to trends in the US.

Related to the issue of access to and demand for degree programmes is the so- called private sector in higher education. The components of the private sector range from credible institutions, like the Singapore Institute of Management (SIM) and its Open University Programme, to others that, through a variety of twinning arrangements, offer both undergraduate and post-graduate qualifications. Part of the reason why these institutions are successful is that they offer older students part-time opportunities to earn a degree. Quite obviously, they accommodate the wide diversity of students seeking tertiary qualifications. However, given the variety of institutional arrangements, and student intake characteristics, there is a prima facie case for greater quality control via accreditation.

The notion of the university as a place for general and professional education, each valued for its unique traditions and serving a wider rather than a narrow view of societys needs, is rapidly becoming obsolete. The two universities in Singapore can fairly be characterised as instruments of the governments economic and manpower policies. Such a tendency is likely to be strengthened in the future as economic planners stress the need for research, development, and the transfer of technology to industry. The age of the entrepreneurial university, it seems, has arrived. While the economic imperative must be given its due, especially given Singapore's special circumstances as a city state with no natural resources, social science and humanities have declined in significance within the universities and their potential for the unique contributions to societal development is under-realised. However, Singapore's society has, as yet, shallow roots and needs its philosophers and poets, historians and musicians.

While it is generally acknowledged that the faculty and students are the heart of any university, the trend towards greater student numbers and increasing demands for economic relevance and research has changed the universities management culture. Traditional systems of tenure, collegiality, and shared decision making are adhered to less and less. The language of the market - faculty as providers, students as clients, industry as stake holders, returns on investment to students - and the borrowing of management concepts and procedures from industry now characterise university management. The tendency is further evidenced in the appointment of industry leaders to university councils. One unfortunate consequence of this trend is the increasing marginalisation of the individual staff member, especially junior staff. As a consequence, there are growing demands for participation and transparency in decision making.

With the challenge thrown down by Dr Tony Tan for Singapore's universities to become centres of excellence, the institutions will have to become even more international. The institutions have never been insular, faculty recruitment has been broad-based, and research has had to meet international standards. However, in general, teaching loads are high and the proportion of post-graduate students to undergraduate is low. In order to become world class institutions, the two universities will have to become even more selective in terms of student admission and recruit good students from the region and overseas. More highly qualified staff will have to be recruited if research productivity is to be greatly increased. There will be cost and other implications. More research/post-graduate centres may have to be developed within the universities and structural changes may be necessary. It is clear that over the next five years there will be many changes made to Singapore's higher education system.

VI. CONCLUSION

In this paper we have attempted to provide a broad overview of developments in the higher education sector in Singapore. Like Switzerland, Singapore is a small state, with two universities. Singapore's booming economy, full employment, commitment to modernise via the creation of high skills manpower places the universities in an advantageous position. Universities are public institutions, well funded, selective with regard to student admission with curricular change driven by primarily economic demands. Indeed, such confidence has the state in higher education that it has challenged the universities to be the Harvard and MIT of the East. Resources will be made available to reach this goal and universities are rapidly responding to this challenge.

The philosophy of the market is also pertinent to management reforms within the universities. Both universities have been asked to be more accountable for their activities and to ensure that mechanisms are in place to ensure quality control over teaching and research activities. Increasingly, performance indicators will be used to measure how well faculties within universities are meeting their goals.

Singapore stands on the threshold of new challenges and opportunities, especially in the economic realm. The technology-rich, information-driven economy of the 21st century will require highly skilled and innovative workers. Higher levels of research and development activity will be required for adaptation and generation of new products and process to spur economic growth. Singapore also looks to the universities to provide the political and social elites for managing 21st century Singapore. The universities must meet these challenges.

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Appendix A

University Programmes and Centres Added Since 1980

	Undergrad Programmes		Post-grad Programmes		Centres	
1	NUS	BS Computational Science 91	NUS	MBA 80	NUS	Centre for Postgraduate Educational Studies and Research 80
2	NUS	BS Materials Science 91	NUS	MA English Language 81	NUS	Institute of System Sciences 80
3	NUS	BS in Comp & Devel Neurobiology	NUS	PGDip Systems Analysis 81	NUS	Centre for Advanced Studies 81
4	NUS	BA Linguistics 91	NUS	MS Info Science & Computer Science 85	NUS	Institute of Molecular & Cell Biology 84
5	NUS	BA European Studies 91	NUS	Dip in Computer Tech 85	NUS	Centre for Industrial Collaboration 86
6	NUS	BA Southeast Asian Studies 91	NUS	Dip in Business Law 85	NUS/NTI	Innovation Center
7	NUS	BS (Hon) Cell & Molecular Biology 92	NUS	MS Building Science 85	NUS	Bioprocessing Technology Unit 89
8	NUS	B Tech 95	NUS	MS (Project Mgmt) 85	NUS	Institute of Microelectronics 90
9	NUS	BS Mech & Manf Eng 96	NUS	MS (Property & Maintenance Mgmt) 85	NUS	Centre for Advanced Legal Studies
10	NTU	BA with Dip Ed 91	NUS	MS (Mgmt) 87	NUS	Centre for Transportation Research 90
11	NTU	BS with Dip Ed 91	NUS	M of Law 87	NUS	Centre for Wind-Resistant Structures 90
12	NTU	Dip Educational Adm	NUS	MMed (Opthalmology) 88	NUS	Centre for Soft-Ground Eng 90
13	NTU	FPDip in Ed	NUS	MS Info Tech 88	NUS	Center for Cell & Molecular Biology 90
14	NTU	B Business 90	NUS	PhD Info Tech 88	NUS	National Supercomputing Research Centre 92
15	NTU	BS Materials Eng 90	NUS	Dip in Knowledge Eng 88	NUS	Centre for Wireless Communication 92
16	NTU	B Communication Studies 93	NUS	M Soc Science 90	NUS	Centre for Remote Imaging, Sensing, & Processing 92
17	NTU	B Business (TQM) 94	NUS	MS Civil Eng 91	NUS	Bioscience Centre 92
18	NTU	B Hospitality & Tourism Mgmt 95	NUS	MS Electrical Eng 91	NUS	Centre for Microwave & Radio Freq 93
19			NUS	MS Mechanical Eng 91	NUS	Centre for Power Electronics 93
20			NUS	M Public Policy 92	NUS	Centre for Intelligent Control 93
21			NUS	MA Appied Econ & Statistics 92	NUS	Centre for Computation Mechanics 93
22			NUS	MA English Literature 92	NUS	Centre for Intelligent Produts & Manuf Systems 93
23			NUS	MMed (Family Pract) 92	NUS	Centre for Advanced Studies in Architecture 93
24			NUS	Dip Software Eng 92	NUS	Productivity & Quality Research Centre 93
25			NUS	PGDip Comparative Law 93	NUS	Institute of Molecular Agrobiology 94

Appendix A (Continued)

University Programmes and Centres Added Since 1980

	Undergrad Programmes		Post-grad Programmes		Centres	
26			NUS	MBA (Mandarin) 94	NUS	Centre for Research in Chinese Studies 94
27			NUS	MA (SE Asian Studies 94	NUS	Centre for Construction Mat'ls & Tech 94
28			NUS	M Comparative Law 94	NUS	Centre for Biolmedical Applications 94
29			NUS	Dip Singapore Law 94	NUS	Centre for Information-enhanced Medicine 94
30			NUS	Dip Aviation Mgmt 94	NUS	American Studies Centre 94
31			NUS	MS Transportation Systems & Mgmt 94	NTU	GINTIC Centre 84
32			NUS	MMed (Diagnostic Radiology) 94	NTU	Entrepeneur Development Centre 88
33			NUS	MS Environmental Eng 95	NTU	Centre for Advanced Construction Studies 88
34			NTU	MBA Accounting 91	NTU	Institute of Manufacturing Tech 89
35			NTU	MBA Banking & Finance 91	NTU	Centre for Continuing Education 91
36			NTU	MBA Hospitality Mgmt 91	NTU	Centre for Transportation Studies 91
37			NTU	MS Communication & Computing Networks 91	NTU	Centre for Applied Research in Ed 91
38			NTU	PGDip Airport Eng 91	NTU	Network Technology Research Centre 92
39			NTU	MS Geotech Eng	NTU	Centre for Graphic & Imaging Tech 92
40			NTU	PGDip Construction Mgmt 91	NTU	Centre for chinese Language & Culture 93
41			NTU	MS International Construction Mgmt 90	NTU	Advanced Materials Research Centre 93
42			NTU	PhD(Business) 93	NTU	Robotics Research Centre 93
43			NTU	MS Mgmt	NTU	Singapore Olympic Academy 93
44			NTU	MS Computer Control & Automation 93	NTU	Information Communication Institute of Singapore 95
45			NTU	MS Info Studies 93	NTU	Institute of Defense & Strategic Studies 95
46			NTU	PG DIP Teaching Higher Education 93	NTU	Environmental Technology Centre 95
47			NTU	MBA Business Law 93		
48			NTU	MBA Mgmt Tech 93		
49			NTU	MBA Mgmt Info Tech 93		
50			NTU	MBA International Bus 94		
51			NTU	MS Transportation Eng 94		
52			NTU	M Mass Communication 95		
53			NTU	MA Linguisitics		

Reform and Development of China's Higher Education System in the Past Decade*

Wei Xin
Beijing University

China's higher education has a long history. It can be traced back to Pi Yong, an ancient university in the West Zhou Dynasty, more than three thousand years ago, then followed Tai Xue in the Han Dynasty, Guo Zi Xue in the Jin Dynasty, and Shu Yuan which developed from the Sui Dynasty to the Qing Dynasty. In 1898, China established her first modern state-run university, the Metropolitan University, the predecessor of Peking University. In 1949, when the People's Republic of China was founded, there were only 205 institutions of higher learning, with a total enrollment of 117,000 and 16,059 teaching staff throughout the country. New China made significant progress in the training of specialized personnel. In 1978, there were 598 institutions of higher learning, with an enrollment of 867,000.

China's higher education has developed rapidly in the past decade. Its path of development in this period has been undulatory, with its enrollments rising from 1.02 million in 1979 to 2.07 million in 1988, stabilizing between 1989 and 1991, and picking up again in 1992, stimulated by a new drive for economic reform and accelerated development which increased the demands for graduates of higher learning institutions.

Since the late 1970s, China started to implement policies of reform and opening up to the outside world, aimed at speeding up economic development and modernization. Education was considered the strategic foundation for China to achieve her economic success, because there was a growing recognition of the importance of availability of well-educated manpower, especially high level specialized personnel. From then on, high priority has been given to the development and expansion of the higher education system. Having experienced rapid expansion in the late 1970s and early 1980s, higher education in China began to shift its emphasis to stabilization and consolidation, with special focus on efficiency and quality as sectoral priorities. To achieve these goals, great efforts have been made by China's government during the past decade.

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*Paper presented as a Country Report, China.

This paper is a "country report" on the past decade reform and development of higher education in China, written at the request of the organizer of Six-Nation Education Project Seminar to be held in Hiroshima, Japan. It is divided into two sections according to the guidelines relating to the general content described by the organizer. Section one provides an analysis on the trend of organizational reform at institution and system levels; section two discusses the trend of reforms of the basic structure of administration and management already introduced. The present situation of academic reforms and their relationship to a perspective of future functions of university and college, which is designated as the third part in the guidelines provided by the organizer, will be involved in the two sections in this paper for author's convenience of organizing the report. For the sake of comparability, this paper, as mentioned above, will follow the general structure and time framework (the past decade) designated for all the country case studies. However, the development and reform of China's higher education system during the past decade was deeply rooted in the changes of the system happening before this period. Therefore, in order to better explain the circumstances, some extra information will be invoked when necessary.

SECTION ONE: ORGANIZATION REFORMS AT INSTITUTION AND SYSTEM LEVELS

(I) Trends of Higher Education Expansion in China

The economic reform initiated since the late 1970s gave impetus to rapid growth of China's higher education because social, economic and technological development require corresponding increases of qualified personnel. This made it necessary for China to accelerate the development of her higher education and to enlarge its scale. After rapid expansion in the late 1970s and early 1980s, the higher education system in China began to enter a stage of stabilization and consolidation, aimed at the raising efficiency and quality of the system. The enrollment of China's higher education has shown great growth in the past decade, accompanied by a slight reduction of the number of institutions in the same period.

1. Institutions of Higher Learning

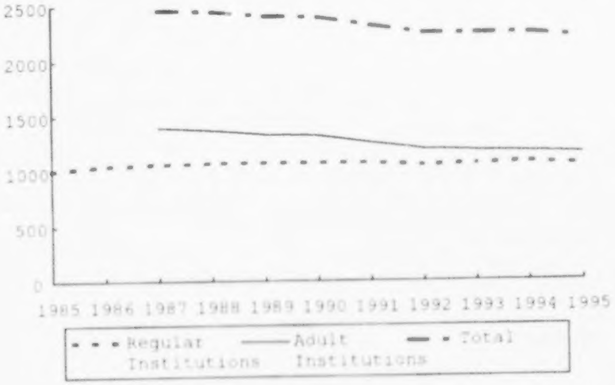
Institutions of higher learning in China can be categorized into two major types: regular institutions and adult institutions. The number of regular higher education institutions in China grew from 404 in 1978 to 1,075 in 1988, stabilized between 1988 and 1991, but was reduced to 1,054 in 1995 by merging some small colleges into large ones (see Table 1 and Figure 1).

Table 1 Numbers of China's Higher Education Institutions, 1985-1995

Year	Regular Institutions	Adult Institutions	Total
1985	1,010	NA	NA
1986	1,051	NA	NA
1987	1,063	1,399	2,462
1988	1,075	1,373	2,448
1989	1,075	1,333	2,408
1990	1,075	1,321	2,396
1991	1,075	1,256	2,321
1992	1,053	1,198	2,251
1993	1,065	1,183	2,248
1994	1,080	1,172	2,252
1995	1,054	1,156	2,210

Source: China Education Statistics Yearbook 1985-1995

Figure 1 Numbers of China's Higher Education Institution by Years



These 1,054 regular institutions are divided into three groups in terms of finance. As shown in Table 2, 35 national universities and colleges are directly administered and financed by the State Education Commission (SEdC), which is also responsible for guidance of the higher education system of China by

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formulating policies, decrees and plans for the country. While 323 specialized universities and colleges are governed and financed by the central line ministries, another 696 local universities and colleges are affiliated to provincial governments, including a few to municipal governments with national and provincial supervision. Apart from the regular or formal system, there also exists an adult higher education system which has 1,156 institutions, with an enrollment of 2.57 million adult students. It also should be mentioned that in recent years there emerged some so-called "minban"(non-government-run) institutions: only 21 of them have been formally approved by the government for accreditation, but many of the short-cycle "minban" institutions exist without approval. This kind of "minban" institutions have been established by local associations and communities, but almost all of them tend to be small in size and unstable, and no reliable statistics are officially available except for the 21 that are nationally approved, so that the others have to be excluded from this paper, although they have potential to grow in the future.

Table 2 Regular Higher Education Institutions by Affiliation, 1995

Affiliation	No. of Institutions	Enrollment	Average Size
SEdC	35	270,409	7,726
Central Ministries	323	1,001,031	3,099
Provinces and Municipalities	696	1,634,989	2,349
Total	1,054	2,906,429	2,758

Source: China Education Statistics Yearbook 1995

Both adult institutions and "minban" institutions concentrate on sub-degree instruction, and only regular institutions can offer degrees. As mentioned above, there were 1,054 regular institutions in 1995, of which 471 can offer master degrees, 219 can offer doctoral degrees, and the rest only provide bachelor degrees. Because, at the beginning of 1990s, the central government wanted to rationalize the higher education system by way of increasing the scale of existing institution and amalgamating small-size institutions, both regular and adult institutions have declined in number, but increased in scale. On average, the enrollment per institution in regular sector has increased from 1,919 in 1990 to 2,759 in 1995, while the scale in the adult sector has increased from 713 to 1,065 over the same period. The government palns to continue to reduce the number of institutions and increase the scale of enrollment in the existing institutions. The central government and local government will cooperate and put priority on investment in and construction of 100 key institutions. These 100 key institutions are expected to reach international standards in the next century, according to a so-called "2-1-1" scheme initiated by the government.

2. Enrollment and Faculty

The average annual rate of increase in enrollment at undergraduate level has been 8.0% from 1985 to 1995. According to the government's statistics, the enrollment per 100,000 of population increased from 161 in 1985 to 457 in 1995 and the gross enrollment in both regular and adult higher learning institutions accounted for 6.5% of the cohort aged from 18 to 21. Enrollment at postgraduate level also reached 145,000 in 1995. From 1990 to 1995, the average annual rate of

Table 3 Enrollment in Higher Education Institutions out of 100 Thousand Population from 1985 to 1995

Year	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
Enroll.	161	175	179	186	185	180	176	186	214	NA	457

Source: China Statistics Yearbook, 1985-1995.

Table 4 Enrollments by level, Faculty and Student-Staff Ratio in Regular Higher Education Institutions from 1985-1995 (in 10 thousands)

Year	Postgraduate Enrollment	Undergraduate Enrollment	Correspondence	Night School	Teacher	Student-Teacher Ratio
1985	8.73*	170.31	NA	NA	34.43	5.00***
1986	11.04*	188.00	NA	NA	37.24	5.10***
1987	10.62*	195.87	45.95	15.33	38.54	5.10***
1988	11.28*	206.59	47.77	15.74	39.32	5.30***
1989	10.13*	208.21	53.03	17.87	39.74	5.20***
1990	8.41	206.27	54.67	17.86	39.46	5.44****
1991	8.05	204.36	49.25	16.90	39.08	5.44****
1992	8.64	218.44	48.40	16.81	38.76	5.86****
1993	9.84	253.55	80.22	25.14	38.78	6.79****
1994	11.82	279.86	106.91**	NA	39.64	7.36****
1995	13.44	290.64	115.04**	NA	40.07	7.59****

Source: China Education Statistics Yearbook, 1985-1995.

* The numbers include postgraduates enrolled both in higher education institutions and research

** institutes.

*** The number includes both correspondence enrollment and night school enrollment.

**** The data is cited from China Statistics Yearbook.

The data is computed by the author based on the data from China Education Statistics Yearbook, 1985-1994. The student numbers include postgraduates and undergraduates but exclude correspondence students and students registered in the night schools affiliated to the regular higher education institutions.

The ratio is unweighted.

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increase in enrollment at postgraduate level was 9.3%. Table 3 and Table 4 show the historical development during the last 11 years. The targeted gross enrollment rate is expected to be 8% and the enrollment in 100,000 population is expected to reach 500 in the year 2000.

From Table 4, we have a clear view of expansion in the regular institutions from 1985 to 1995. Postgraduate enrollment has increased by 59.81% from 1990 to 1995; undergraduate enrollment has increased by 70.65% from 1985 to 1995. Instruction by correspondence and in night school constitutes adult higher education in regular institutions. This sector has also increased dramatically, by 87.73% from 1987 to 1995. But the numbers of teachers in the regular institutions have only increased by 16.38% from 1985 to 1995. As a result, the student-teacher ratio changed from 5.00:1 in 1985 to 7.59:1 in 1995.

(II) Reforms Accompanying the Massification of China's Higher Education

In the past decade, China's policy of "reform and opening up to the outside world" has achieved great success. The policy has accelerated the nation's economy and kept it at a steadily increasing speed. The annual rate of increase of GNP between 1991 and 1995 reached 12%. The objective of increasing the GNP of the 1980s by as much as 2-fold by the year 2000 was gained 5 years earlier than the original plan. Recently, the Chinese National People's Congress approved the "Ninth-Five-Year Plan (1996-2000) for National Economic and Social Development and Outline for the Perspective Goals of the Year 2010". This must accelerate the pace of reform and opening up, and China's economic and social development will reach an even higher level. The acceleration of economic and social development provides great challenges for China's higher education. To cater for the needs of economic and social development, the nation has implemented a series of reforms in the higher education sector since mid 1980s. The central government issued an important document, "Decision of the Central Committee of Chinese Communist Party on the Reform of Education System" in 1985, and in 1993 the government issued

another important document related to the reform of education, "Outline for the Reform and Development of China's Education". The "Decision" (1985) pointed out : "China's strategic goal in the development of higher education is that by the end of this century, China will have built a well-proportioned, rationally-tiered system embracing a complete range of disciplines and areas, on a comprehensive scale conforming to its economic strength; and senior specialists will be trained basically at home". The "Outline" (1993) further stated that "in the 1990s, China's higher education must be geared to the needs of the accelerating reform and opening up and the modernization drive. We should explore new approaches, enlarging the scale of higher education, making its structure more rational, and improving its quality and efficiency obviously". In order to achieve the aims stated above, China has made and is still making great efforts in reform and development of higher education at both institution and system levels. The detailed approaches and alternatives used for achieving the aims are briefly introduced below:

1. Enlarging Enrollment

While China has now achieved substantial growth in higher education enrollment, the scale of China's higher education is still too small for the current and increasing social needs. In 1995, as mentioned above, only 457 out of 100,000 people were enrolled in colleges and universities, and the current proportion of the appropriate age cohort (18-21) in regular higher education institutions is only about 3.4%. This is extremely low in comparison with other Asian countries such as India, 6%, Malaysia, 7%, Thailand, 16% and Korea, 40%. Therefore, the scale of China's higher education "will be further expanded", as indicated in the "Outline for Reform and Development of Education in China", which was issued by the central government in 1993.

However, expansion of higher education is not only determined by the demands of the society, but also by the resources the society can provide. In addition to the demands and the resource limitation, it is also correlated with the existing personnel and employment system of the country. Taking the various limits into full account, it is expected that student enrollment will reach about 6.5 million by the year 2000. The gross enrollment rate will be raised to 8%, and the enrollment in 100,000 population will amount to 500 by the end of the century. In 2010, the number of students in all kinds of higher learning institutions will probably be 9 million to 10 million, and the gross rate of enrollment will possibly reach 11% to 12%. Considering that the average size of the existing institutions is quite small, the government will mainly take the route of "developing potentials of the existing institutions" to enlarge the scale of China's higher education.

2. Readjusting Structure

With China's economic system being transformed from a planned economy to a market one, tremendous changes have taken place in the structure of industry and economic patterns. The proportion of service industry has increased rapidly, and the professional-structure within various trades has been changed noticeably. At present, the output value of collective ownership and other non-state-run enterprises accounts for more than half of the gross output value of the nation's whole industry. These changes of economic structure have resulted in changes of the structure of demand for specialist personnel so that the government decided to take measures in readjusting the structure of higher education.

First of all, in terms of levels, major efforts have been made to develop advanced professional schools in order to make up a deficiency of personnel with advanced professional training, who are urgently needed in implementing the scheme of universal compulsory education throughout the country, in flourishing local and township enterprises, and in transforming and disseminating agriculture technologies in the rural areas. In 1995, the proportion of enrollment in the advanced professional schools occupied 65.4% of total enrollment of all higher learning institutions. Meanwhile, efforts have also been made to train more postgraduate students. In 1995, the student enrollment at this level amounted to 145,400, which is 6.7 times more than that in 1980. According to the "Outline", in the future, further efforts will be made to develop local advanced professional education, and in particular focus will be put on advanced professional education to meet the needs of rural areas, small and medium-sized enterprises, township enterprises, and service industry. More attention will also be given to training postgraduate students. It is expected that the enrollment of postgraduate students will reach 180,--200,000 by the year 2000, and possibly 300,--500,000 in 2010 (Wang, 1996).

Secondly, regarding disciplines, priority has been given to applied fields of study since Chinese higher education entered a new period of vigorous development after the Cultural Revolution. Social sciences, such as finance, economics, management, political science and law have been rapidly developed to meet the needs of the market economy and construction of the legislative system. The proportion of the students enrolled in programs of finance, economics and management increased from 3.2% in 1980 to 14.8% in 1995; political science and law from 0.2 to 2.9 in the same period. Meanwhile, the proportion of the students studying in the fields of high technology has also increased greatly. As pointed out in the "Outline": "The basic disciplines will basically keep their steady enrollments as normal, new and frontier disciplines will be developed appropriately, with stress on the applied fields".

Thirdly, as to educational forms, much effort has also been dedicated to developing adult higher education, such as correspondence education, workers' colleges, peasants' colleges, institutes for training of cadres, and radio & TV universities, so as to improve the quality of the manpower at work. In 1995, enrollment of students studying in the adult higher education institutions was 1.49 times that in 1985, and occupied 46.9% of the total enrollment in all kinds of China's higher education institutions. The "Outline" requires that:" From now on, attention has to be paid to in-job training and continuing education, updating the knowledge of employees should also be focused on". and the government will "establish and improve the in-job training system, certificate system qualification and testing system, and continuing education system". China's higher education is expected to be developed into lifelong education.

3. Reforming Administrative Mechanisms

In order to adapt to the needs of establishing a socialist marketing economy, since the early 1980s the government has been gradually moving away from a centralist model in which it controlled the detailed operation of higher education institutions. The centralist model was originally applied by control of five key functions of the government: 1) provision of core funding; 2) setting student enrollments for each institution; 3) approving senior staff appointments; 4) authorizing all new academic programs; and 5) managing the student assignment process.

With the increasing expansion of the higher education, the central government felt that it was difficult to exercise this control model in a way compatible with the needs of the rapidly growing market economy. Therefore, the government began to try to find a new approach in which the needs of the new economic system could be met. The principles behind this new approach are summarized in the "Outline" issued by the CPC Central Committee and the State Council. In this important document, the government calls for deepening reform of China's higher education system "by gradually setting up a system under which the government exercises overall management while institutions are run independently and geared to the needs of society". The document indicates the areas of the institutions' managerial autonomy should be expanded as being "enrolling students, adjusting specialties, appointing and dismissing cadres, spending funds, evaluating professional titles, distributing wages and conducting international cooperation and exchanges". Now the government only imposes so-called "macro control or macro management" through legislation, funding, appraisal, and information service, etc. on the institutions of higher learning.

The relationship between the central government and the provincial or local governments has also changed. More decision- making powers were given to the lower level authorities, with only the responsibilities of making national plans and policies for the development of higher education retained by the central government. The SEdC is responsible for supervising the implementation of the plans and policies and still directly governs the 35 national universities. The local institutions are managed by the provincial governments quite independently. At the same time, the central government encourages local governments to participate jointly in running the universities and colleges affiliated to the central line ministries through an arrangement of joint-management by both the provinces and the ministries. The provincial governments are also encouraged gradually to govern these institutions alone. In short, the decision-making power of the provincial authorities has been gradually expanded. This greatly promotes the initiative of local authorities in developing higher education.

4. Enhancing International Exchange and Collaboration

The original activities of international exchanges in China can be traced back to the end of Qing Dynasty, about one hundred years ago. However, a larger scale of this kind of activity took place after implementation of the "reform and opening up" policy. Since the early 1980s, China has made an unprecedented development in international exchange and collaboration in higher education. The number of students sent to study abroad by the SEdC, according to some rough statistics, has reached 40,000, and those sent by other sectors and those self-supported are even greater in number than those sent by SEdC. At the same time, foreign students studying in China have already reached over 20,000 (Wang, 1996). In addition, many scholars and delegations have been sent abroad to visit schools, give lectures, do research work, or take part in international conference. These activities help the country get useful experience, and provide the students, scholars and administrators with chances to improve themselves. China's experience, of course, has been disseminated to other countries meanwhile.

5. Reforms at the Level of Individual Institutions

With encouragement from the government, reforms at the level of individual universities and colleges have also made great progress in many aspects of internal management and teaching. Description of internal management reforms of institutions will be given in Section 2, while teaching reforms are discussed in the following part (III) of this section.

6. Main Problems and Conflicts

While the reform of China's higher education has achieved many objectives, there are still many problems and conflicts needing to be solved. First of all, the proportion of the appropriate age cohort in higher education institutions is still quite low in comparison even with other developing countries. Chinese higher education still does not approach the level of massification. Secondly, the efficiency of China's higher education system has yet to be improved in terms the of average scale of the institutions and the student-teacher ratio. Thirdly, with regard to macro-management by the government, it needs to be defined more clearly. According to the what is described in the "Outline" mentioned above, it seems many powers have been delegated down to local government and the individual institutions. However, this description about delegation of power seems to provide more control than most definitions of a regulatory role elsewhere in the world.

(III) Pursuit of Teaching Reforms

1. Student Diversification

In accordance with the guidelines of the paper designated by the organizer of the international seminar, the present situation of student massification and diversification is described here.

From Table 5, we can obviously see that female students in the higher education sector took approximately one third of all student enrollment from 1987 to 1995. All students, regardless of their sex status, are treated equally when institutions recruit freshmen. The decisions on admission are determined by scores in the nationwide entrance examination. The distribution of students in term of gender is very uneven in different types of institution. Generally speaking, teacher-training institutions, institutions of medicine, foreign language institutions and comprehensive institutions, the difference between male students and female students is small. In contrast, female students are only a minority in technical and engineering institutions. One big gender problem resides in a the job market:

Table 5 Percentages of Female Students and Minority Students in Regular Higher Learning Institutions from 1987 to 1995

Year	1987	1988	1989	1990	1991	1992	1993	1994	1995
Female (%)	33.0	33.4	33.7	33.7	33.4	33.7	33.6	33.5	35.4
Minorities (%)	6.1	6.1	6.3	6.6	6.9	7.0	6.4	6.4	6.5

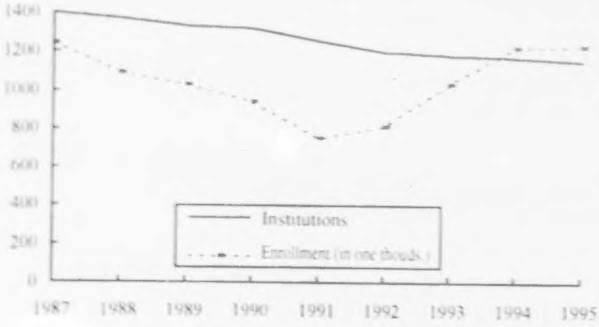
Source: China Education Statistics Yearbook 1987-1995

Table 6 Enrollment (in one thousand) in Adult Higher Education Institutions from 1987 to 1995

Year	1987	1988	1989	1990	1991	1992	1993	1994	1995
Radio & TV Univ.									
No. of Insts.	39	40	39	40	42	44	45	46	46
Enrollment	565.9	453.8	417.4	387.8	282.4	335.5	437.9	536.4	541.6
Workers' College									
No. of Insts.	915	888	848	835	776	726	714	703	694
Enrollment	337.9	288.0	254.2	230.3	219.1	230.1	275.2	307.5	313.9
Peasants' College									
No. of Insts	5	5	5	5	5	5	5	4	4
Enrollment	1.1	0.7	0.6	0.4	0.2	0.3	0.3	0.7	0.26
Inst. for Administration									
No. of insts.	108	171	172	172	175	168	166	170	166
Enrollment	55.8	61.7	63.0	54.2	51.9	56.8	93.1	135.4	147.7
Educational College									
No. of Insts.	268	265	265	265	254	251	249	245	242
Enrollment	251.2	276.2	280.4	253.0	185.6	179.2	216.9	230.4	213.7
Independent Correspondence College									
No. of Insts.	4	4	4	4	4	4	4	4	4
Enrollment	33.3	12.1	15.9	15.8	13.1	12.5	12.1	13.6	13.5
Total									
No. of Insts.	1,399	1,373	1,333	1,321	1,256	1,198	1,183	1,172	1,156
Enrollment	1245.2	1092.5	1031.5	941.5	752.3	813.4	1035.5	1224.0	1231.4

Source: China Education Statistics Yearbook 1987-1995

Figure 2 Number of Adult Institutions and its Enrollment by Years



usually, female students are in a disadvantaged position in finding jobs.

According to the census in 1982, ethnic minority populations amounted to 6.7% of the country's total population (Wang, 1992). The percentage of students with ethnic minority status was 6% to 7% of all students in higher education sector during the years 1987 to 1995 (see Table 5). Ethnic minority students are usually in a more favorable position in admission to institutions of higher learning, if they get the same scores as students of Han ethnicity. The former are usually educated at the ethnic institutions or in special classes of non-ethnic institutions.

Enrollments in different kinds of adult higher education institutions are shown in Talbe 6. Totally, in 1987 there were 1,399 adult institutions, enrolling 1,245,200 adult students. In 1995, the total number of adult institutions was reduced to 1,156, with 1,231,400 adult students enrolled. Comparatively, the data of the last 9 years have shown a gradual reduction in institution numbers, but with enrollments first declining and then increasing. This trend is shown in Figure 2.

2. Teaching Reforms

Much effort has been made at both institution and system levels to improve the academic quality of higher education. With the establishment of the market economy system in China, drawbacks in the professional education in accord with the former USSR model established in the 1950s under the planned economy system became more and more evident. The students' knowledge scope was narrow, and their ability was limited. They also lacked of overall sense, adaptability and flexibility when they faced a rapidly changing society. In particular, it is commonly recognized that it is important to move away from the former focus solely on professional education towards one offering both professional education and general education. To change this situation, some colleges and universities have made some experimental reforms in curriculum and teaching methods. They have broadened the scope of the former specialties, merging some of them and adding some newly developed programs into their lists of major subjects, in accordance with the needs of society. Also, in accord with the objectives of general education, the institutions have reduced the proportion of required courses and increased the number of elective courses, instituted credit systems, and a major plus minor system. In these ways they have sought to set up a proper curriculum system for the purpose of rational training, a knowledge structure for students which is reasonalbe and comprehensive, and provide training for students' sound mentality, morality, health and culture as well. Great consideration has also been given to fully developing characteristics of individual students and training their various abilities.

The world today is undergoing a revolution characterized by informationalization, and the speed of knowledge renewal is becoming faster. To conform to the development of current science, technology and culture, the institutions tend to make teaching contents reflect the most recent achievements in scientific technology and cultural development. They have adjusted their teaching content through eliminating old, out-of-date knowledge and adding something new.

As to teaching method, lecture, experiment, seminar, social investigation, social practice, self-teaching, personal guidance, etc., have always been the main traditional teaching methods. In recent years, with the development of information technology, computer-assisted-instruction is more and more commonly used in all institutions of higher learning in China.

In the near future, with more and more familiarity with research on general education in western countries, China will recognize the importance of general education in the cultivation of students. This will lead to more endeavors to make substantial progress in the field of teaching reforms.

SECTION TWO: THE TREND OF REFORMS OF THE STRUCTURE OF ADMINISTRATION AND MANAGEMENT

(I) Changes of Higher Education Administration Policy

1. Devolution to Universities of More Powers and Responsibilities

The reform of economic structure in China has completely changed the thoughts and structures in higher education (Min, 1994). The Chinese economic structure has evolved from a planned system to a market system since 1978. Under the planned economic system, the institutions of higher learning were tightly controlled by the government because the institutions were not autonomous, and therefore, lost their vitality. Consequently, the devolution in higher education administration and management has become one of the foci in the "Decision of the Central Committee of Chinese Communist Party on Reform of the Education system" issued in 1985. In the decision, the institutions were delegated the following powers, at least on paper. (1) They can recruit students according to contracts between institutions and employers, and tuition-paying students, both of which are additional to the state's plan. (2) They can adjust their majors when they think it is necessary, stipulate their teaching plan and syllabus, edit and choose textbooks for their students. (3) They can cooperate with other industrial and research organizations to conduct research projects, and to establish teaching, research and production entity. (4) They can appoint and remove their vice-presidents and lowyer-level administrators. (5) They themselves can decide on the disposition of the capital and recurrent funding channeled from the government. (6) They can tap other appropriate sources for investment, besides governmental grants. In 1993, the CPC Central Committee and the State Council jointly published the "Outline for the Reform and Development of China's Education", in which the proposals on devolution mentioned above were further stressed. Under the framework of the two imperative documents, the government will focus on administration at the macro level by way of legislature, funding, strategic planning, information service, audit and evaluation; and the institutions will face and satisfy the social needs. The relationship of affiliation between institutions and government will be weakened, and more powers and responsibilities will be devolved to the institutions.

According to the new framework, changes have been introduced in the direct relationship that the government has with institutions, and the mechanism of designating the institutions as independent legal entities has been placed on the government's agenda. This is the legal base on which their managerial autonomy will rest, as it could allow them to set their own strategic goals of development, define their own specialisms and control their resources accordingly. In August 1992, SEdC issued a official directive document which relaxed central control in sixteen areas. The relaxation mainly involved in the management of the institutions and the power delegation to the institutions. For instance, according to the document, the institutions gained the right to choose what kinds of academic programs to set within the broad academic area approved by the SEdC; they could receive capital and recurrent budgets as "global budgets" from the government, which allowed flexibility within the total; they could expand tuition, fee paying and contract student numbers within a cap of 25 % of their total enrollment; they also could be free to pay bonuses or rewards to their individual staff for good performance, etc. As a result of the reforms since 1985, the changes in administration of higher education in China are great and evident. Although individual institutions have got more freedom to run themselves, the student number targets for those students funded by the State funding is still set by government, and major new programs still require the approval of the government (World Bank, 1994).

After ten years' reform, the institutions have been better empowered, but as mentioned above, over-centralization still exists so that further devolution in China's higher education administration and management is still on our reform agenda at present and in the future.

2. Reform in Financing of Higher Education

The new framework is based on strategic goals for China's future. In the "Outline", the government stresses that education is the foundation of China's long run plans, and indicates that "whoever receives education that is oriented towards the 21st century will gain the strategic initiative in international competition during the 21st century". The document also admits that, even if the State proposes to increase the share of GDP which is used for education, it can not bear all the burden of the investment to education that will be needed. Thus contributions will be required from educational surcharges in both urban and rural areas, tuition and fees, profits from school-run enterprises and voluntary, tax allowable contributions from business concerns, individuals and other resources in society.

The reform in financing of higher education aims at both alleviating the pressure on the government's finance and strengthening the institutions' capability for self-reliance. The main approach being adopted by the government is combining reduction in public subsidies with diversification of sources of funding. In the past decade, although public expenditure on education in real terms has grown by about 6.19 times from 22.80 billion Yuan in 1985 to 141.16 billion Yuan in 1995, and its percentage of total government expenditure also grown from 12.35% to 16.05%, its percentage of GNP has declined from 2.22% to 2.46%.

Among public expenditure, spending on education as a percent of GNP is small in comparison with developing countries' average of 4%, and developed countries' average of 5.7%, though the growth rate of government allocation to education exceeded that of both GNP and public expenditure (World Bank, 1994). As admitted in the "Outline", it is evident that the government can not bear all the burden of financially supporting its big education system. In order to alleviate the burden of the government, several significant reforms related to the mechanism of financing have been made by the central government.

1) As part of the overall economic reform to allow provinces to retain a higher portion of their revenues, the central government delegated responsibilities to provincial governments for financing higher education, therefore making possible the mobilization of previously untapped resources, and encouraging provincial governments to invest more funds in higher education. For

example, Guangdong Province has invested massively in higher education in the recent years, raising teachers' wages and improving teaching conditions in their own institutions, and also matching the allocation from the central government to SEdC's universities and colleges located within the province.

2) Along with the financial decentralization, changes took place in the funding mechanism. The reform replaces the unchangeable line item budget by a lump sum one from the government to the institutions, and allows them to spend the money autonomously. Meanwhile, the incremental approach to allocating recurrent funding has also been replaced by a formula-based approach. However, the formula has only one major allocation parameter---the full-time equivalent student enrollment. It does not provide incentives to improve efficiency and quality though the transparency in allocating resources has been improved (Word Bank, 1994). Recently, the government has decided to develop a new formula-based approach including multi-parameters. It is expected that the efficiency and the quality will be improved by using the new formula to allocate recurrent funds to the institutions in the near future (Guan Fenghua & Wei Xin, 1995).

3) Diversification of funding sources was considered to be an important way to make good insufficiency of investment in higher education. The government has encouraged institutions to generate their own revenue through tuition and fees, research and consultation, commissioned training programs, school-run enterprises, and other services to industry and communities. It is also encouraging institutions to receive social contributions and to raise private donations. For example, Peking University and Qinghua University are the first two universities being formally approved by the government to establish foundations to receive donations.

3. Merging Institutions

The segmentation in China's higher education structure was adopted from the former Soviet model, and it has become a crucial obstacle on the way towards our new system. The existing structure resulted in conflict between central governmental ministries and provinces. The institutions get their funding from related ministries or provinces, so they narrow their service ranges. There is serious overlap in the establishment of institutions and majors, and it is inefficient in the utilization of scare resources. In the future, the central government will just run a few key universities, and the provincial governments will take responsibility for the majority. The experiment has been carried out in the form of cooperation among central governmental ministries, provinces and business organizations

(Tsang & Min, 1992). Fudan University and Shanghai Communication University are two typical examples. They are invested by both state and Shanghai Municipality, and their services are also provided both nationally and locally.

Another defect in the system is over-specialization, especially in a few small-size institutions. Merging these institutions is a useful way to solve this problem. In one of our projects sponsored by the World Bank, among 19 institutions there are 12 institutions participating in such merger activities. By doing so, the student-teacher ratio has been upgraded and institutions are more responsive to the needs of their location.

4. Reform of Financing Students and Graduates' Job Assignment

Reform has also taken place in the areas of financing students and graduates' job assignment. The emphasis has been and will be on change to the long standing situation in which the State is responsible for paying tuition and for assigning jobs to graduates.

Before the mid 1980s, the State covered all the costs of higher education. After that, some employers paid for a small proportion of the students according to contracts commonly signed by the students, the higher learning institutions and the employers, and only a small number of students paid tuition by themselves. The state still paid for the most of the students. In the past few years, the situation has changed greatly. At present, the reform of financing students focuses on the institutionalization of a system under which students will pay tuition and fees for schooling. In the past three years, more and more universities have been listed as institutions which only recruit tuition and fee-paying students. This year, the number of institutions carrying out the reform will increase to about 661 (accounting for half of the regular institutions of higher learning in the country). From 1997, free higher education will become history. At the same time, as an accompanying measure, the State will provide special scholarships and loans, and institute a policy of reducing or waiving tuition and fees, and providing loans for students coming from poor families. This is to ensure that the needs for professionally competent personnel of hard trades and regions with poor working conditions are met, and good students from poor families get the necessary support so that they can have equal opportunities to receive higher education.

Before the mid-1980s, graduates were assigned to certain places strictly according to the State plan. From 1984 to 1992, the State exercised a so-called "mutual selection" approach, in which students could select their jobs through a process of mutual selection between the graduates and the employers. In 1993, the "Outline" pointed out that "we shall go on with our efforts to create conditions so that under the guidance of the state policy and through a process of mutual selection between graduates and their employers within certain limitation, graduates can gradually enter the human resources market and choose their jobs.

(II) Reforms of Management at Institution Level

As described in the previous parts, institutions were being given greater control over the management of their own affairs in the past 10 years. Reform in the aspects of internal management of the individual institutions has been implemented gradually and incrementally. Many endeavors have been made to reform the structure of management, the system of personnel, scientific research, logistics, university-industrial relationship, finance, housing, etc..

1. Reforms of Leadership and Structure of Management

Within China's institutions of higher learning, the balance of centralization and decentralization has always been a key point in school administration or management. Recent reforms indicate the tendency of decentralization which delegates more power and freedom to the sub-units of the colleges and universities.

One main strand of recent reforms is to strengthen the management role of the university President. In the mid-1980s, the university President was the decision maker, being in charge of the overall affairs of the school. From the beginning of the 1990s, the President came to be under the leadership of the Party Committee of the school. Although much formal documentation shows the President as still being subject to the direction of the Party Secretary, there is no evidence that this has clashed with the Presidents academic autonomy (World Bank, 1994).

It is noteworthy that in the late 1980s and the early 1990s, some schools established Boards of Trustees which help to create and develop links with society and industrial sectors, but the system of trustees is still by way of experiment. For example, Anhui University, claiming to be the first to establish such a board in 1988, says that over 50 enterprises and other organizations had nominated Trustees (World Bank, 1994). There is no common expectation from creation of the Boards. Most institutions used the Boards to give them to access to a wide range of enterprises and to mobilize funds, some of them stressed the involvement of the related officials, while only a few actively involved the Boards in their management, expecting the Boards to review the universities' development plan and providing suggestions to the authorities of the universities. The State encourages establishing Boards of Trustees at the universities and colleges, therefore it could be expected that the system of trustees might play a role in the internal management of the institutions of higher learning.

2. Reform of the Structure of Academic Organizations

Some research universities in China also used experience of management of western universities as reference to change their university-department "two-level-model" into the university- college- (faculty) -department "three-level-model" so as to rationalize the internal structure of the universities. The purpose was to change the situation that the management span was too wide, the transmission of information was un-smooth, the efficiency of management was too low, and the burden of the president was too heavy. To change the "two-level-model" into the "three-level-model", they have tried to base the internal management mainly on the level of college. The university emphasizes macro-management, in charge of the formulation of policies, the development objective and long-term planning of the university, while the colleges under the university level become the management entities which have considerable powers to deal with their own teaching and research affairs, the management of personnel, and resource allocation within the colleges respectively. The reform is still going on. The university Presidents have been quick to appreciate that they do not need to exercise detailed control over the affairs of academic colleges, faculties or schools and most of the responsibilities have been moved rapidly to the Deans. It could be expected that in the coming ten years, the "three-level model" may be adopted by more and more China's institutions of higher learning.

3. Personnel Reform

Improving the quality and performance of personnel has understandably been given top priority by almost all Presidents during the past ten years. In accordance with the challenge of introduction into higher education of the market principle, traditional ideas of giving promotion according to one's experience and age were eliminated. Academic performance was considered as top priority in the process of promotion. The proportion of young and middle aged teachers in high positions has been increased. Strong emphasis has been placed on teaching quality through appraisal, examinations and the award of prizes to the best teachers. At the same time, poor quality academic staff were encouraged to look around for other non-academic jobs in the university, and in a few extreme cases some of them were asked to leave. Jobs would no longer be given those evidently unqualified for them but opened to anyone who wanted to apply. However, it is still very difficult for Presidents to dismiss all the unqualified staff because the nation's old personnel system has yet to be further reformed with establishment of a more perfect system of social insurance.

The leaders of the institutions also got rid of the old method of giving everyone the same bonus, replacing it by rewarding teachers according to their performance. All the measures have made an obvious improvement of efficiency of utilizing the human resources in the universities.

4. Reform of Logistics

Logistics is a big part of works in a university. It supplies services for the teachers and students, helps teaching, research and other work in the university. But in the past, almost all the Presidents thought logistics as a problem and a heavy burden for the university. Every year, lots of money was put in, but the situation remained the same. In order to completely solve the problem, with encouragement of the government, many universities decided to commercialize the support functions of their logistics systems making them better managed within the universities and encouraging them to undertake work for outside customers; and to socialize them by releasing them from the university systems allowing them operate as free agents in the outside marketplace, as long as they performed some limited contracts for the universities. At the same time, the apartments in which university staff are living are being sold to them at a discount. This will alleviate the pressure on the universities to provide housing for their staff. With establishment of the social insurance system in the country, retired staff will get insurance from society but no longer from the universities as in the past. In doing so, a big burden should be partially unloaded, and the situation that housing, medical treatment, and pension are entirely paid by the state will be gone forever.

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Higher Education in a Federal System*

Wilfried Hartmann
University of Hamburg

Introductory Remarks

Over years almost nobody showed interest in the situation of higher education in Germany. From time to time one could find short articles on the social situation of students or too little money for universities, but one had always the feeling that they were only published when every detail about the Loch Ness monster had already been published. However during the past four years one gets the impression, that the general public in Germany has become very much concerned about the situation of German higher education and the results of German research. Leading magazines appear with cover stories on university rankings, the role of research or the development of the higher education system. Newspapers write about the decrease of German applications for patents with the European Authorities since 1988; about the fact that public money for research is only yielding 2% of all patents; press conferences by universities or the German Research Foundation considering the endangered freedom of research, guaranteed by the basic law, are really used as the basis for articles; and letters to editors react to suggestions concerning the introduction of a bachelor degree, abolition of the tenure system or privatization of higher education.

Perhaps this is partly a result of the new structure of competencies in the cabinet of the federal government, where, during this term of office, the ministry for research and technology has been united with that responsible for education and science, putting an enormous pressure of expectation on the minister, who is often referred to as "Minister for the Future". These expectations correspond with a widespread feeling that the German educational system - and to some extend the research system, too - should be modernized and made more efficient.

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*Paper presented as a Country Report, Germany.

Note: I thank Mr. Roland Thierfelder, Bonn and Prof. Ulrich Teichler, Kassel for many helpful suggestions and additions.

if Germany wants to compete successfully with other countries in the world. This is asking for a close and productive cooperation between federal and state levels to overcome the obstacles inherent in the German federative structure according to which education and cultural affairs are the responsibility of the 16 individual states, the "Länder". The competence of the federal minister and of federal legislation is by law restricted to "general guidelines of the educational system". Therefore all initiatives by the minister with a higher grade of precision are more likely to be transformed into states' legislations if they are reflecting lines of the general discussion. This applies, e. g. to the minister's plan to reform the federal Framework Act for Higher Education, a law that had been changed for the last time in 1985. He suggested in a speech delivered to the German Parliament, the Bundestag, in August 1996: a shorter duration of studies, more reference to practical application of knowledge, better contacts with commerce and industry, new regulations for access to higher education, growing autonomy for institutions of higher education, and a system of financing related to success. In interviews of politicians and papers additional elements are mentioned, like multitiered examinations, similar to the bachelor, master, doctor steps, a credit point system, more frequent controls of achievement, intermediate examinations, a final trial-examination, regular evaluation of research and teaching, autonomy of institutions concerning not only selection of personnel, but also the creation of positions, the importance of teaching qualifications for professors, etc. etc.

Even though there seems to be a broad consensus about the necessity of reform, the German system with its elaborate distribution of power and responsibilities between federal government, the 16 Länder within the Federal Republic and the institutions of higher education-especially the universities, with their far-reaching autonomy and often considerable de facto influence on the decision making process of the politicians-makes it difficult to tell in which direction the final legislation will develop. And this is even more so as not only the most important political parties are in favor of different approaches, but ministers, rectors and politicians belonging to one or other party do sometimes openly disagree with the views of their chairpersons, e. g. on the topic of tuition fees.

The task is to find a generally acceptable solution precise enough to serve as a solid frame to describe the goals of reform, but nevertheless flexible enough to allow the states and the institutions of higher education to fill it with pictures depicting their own needs. Having this in mind I try to fill the frame given by our Japanese colleagues with a picture of the German situation, well knowing that as in all attempts of our states' policy to fit their ideas into a federal framework, certain aspects will seem to be neglected whereas others will show a tendency to overreach the given boundary of the common frame. The discussion will hopefully allow some elaboration on one or other aspects and reduce those elements of no more than regional interest.

1 The Trend of Organizational Reforms at Institution and System Level

1.1 Trends of higher education expansion

1.1.1 Expansion

1.1.1.1 On the history of expansion

In Germany two phases of expansion of higher education institutions are clearly distinguishable, the first of which ended during and shortly after World War I with the foundation of the University of Frankfurt and Hamburg respectively. The number of institutions remained more or less stable from that time on. Therefore until the 60's in the Federal Republic we could find a total of 33 institutions of higher education that could be called universities in a wider sense, i.e. 20 "traditional" universities, 9 technical universities or colleges and four special institutions for sports, economy and politics, vets and public administration.

After 1960, when in Germany the phrase "Bildungskatastrophe" meaning the disastrous situation of education, was coined by Georg Picht (cf. Georg Picht 1964), 38 new institutions were founded or granted the title or status of a university. Today, they share the admission requirement of the "Abitur" (the school-leaving examination after 13 years of schooling), with theological colleges, colleges of education and most arts colleges.

In addition to the universities, most of which are pursuing the ideal of universal education-that is they are striving to offer as many subjects from different fields as possible-another group of institutions has to be given attention to get a proper picture of the German system: the "Fachhochschulen", a term perhaps translatable as "subject centred institution of higher education". Introduced as a new type of institution of higher education at the end of the 60's, the Fachhochschulen mainly developed from the former schools of engineering and can be defined as more application-oriented institutions of higher education. In 1992, 101 institutions of this type existed in the western states, 25 in the eastern, the biggest of which enroll as many as 20,000 students, the smallest, less than 50. The common name, introduced by federal legislation is misleading, as the traditionally grown differences of these institutions are still of importance. Only 42 of the FHS in the old states offer studies in two or more fields, where a field describes an area of related subjects, as a rule providing degree courses particularly in engineering, economics, social work, and design etc.; the others just offer subjects belonging to one special field. The recommendations given by the federal council for science on occasion of restructuring of the institutions in the new, eastern states, suggest at least three fields and at least 1000 students per institution. But only eight FHS in the east have reached these numbers.

The admission requirements differ from those for the universities. As a rule the so called FHS-maturity is reached after 12 years of schooling, of which the last two - grades 11 and 12 - were spent at a so called "Fachoberschulen", "subject centred higher secondary schools".

1.1.1.2 Expansion of the number of institutions

Since the end of the sixties the situation has remained relatively stable. Therefore a comparison of the numbers of institutions we find today and ten years ago would be misleading:

Table 1

	1985	1994
comprehensive inst.of higher education	8	1
universities	59	71
teacher training coll.	11	6
theological colleges	15	15
total	93	93

The main feature on the territory of the old Federal Republic of Germany, as clearly can be seen, has not been a foundation of new institutions but the reorganization of so called "Gesamthochschulen" (comprehensive institutions of higher education).

The picture is even more misleading when we include the situation in the new states of the Federal Republic, in the territory of the former GDR. There in 1989 we could find 32 universities and 9 teacher training colleges. In 1994, due to closures, new definitions and in spite of the opening of four new universities, we can count only 17 universities. But at the same time, 2 theological colleges, 26 Fachhochschulen and 7 colleges for administration were founded.

Most of these institutions are financed by the states. Exceptions are, for example, the two federal universities of the armed forces in Munich and Hamburg, and five private universities like the one in Witten-Herdecke, the European Business School in Oestrich-Winkel, and the higher institution for management in Koblenz, seeking annual tuition fees of between DM 6,600 and DM 16,000 and not accepting more than between 40 and 170 students.

1.1.1.3 Expansion of the number of students

A view of the number of students allows a more reliable picture. Two sets of numbers will be used: the number of students entering higher education and the total enrollment.

In western Germany in 1960 altogether 79,400 students entered universities (60,000), arts colleges and different types of technical colleges. The numbers had more than doubled by 1975 - 166,600 (universities 119,900) and reached in 1990, at the time of the German unification, a peak of 278,200 (universities 198,000). In the new eastern Länder 39,500 students entered in 1990.

For all of Germany, most recent data, reported by the chairman of the German-Rectors-Conference at the end of November 1996, show 238,100 students entering their studies.

As can be deduced from the numbers given for the universities, the main growth took place with the FHS. The number of new registrations had only doubled by 1975 (from 16,800 to 43,800) but in 1994 with 73,700 newly registered it was 4.5 times as high as in 1960, after an even higher peak of 82,200 in 1993. For the whole system of higher education after a period of about 10 years with - for demographic reasons - lower entering figures, the expected trend indicates a further growth up to 378,000 in 2010, out of which about one fourth will be qualified for FHS studies.

The total enrollment in 1960 was not far from the entering number in 1990: altogether 291,100 students were registered (the majority of them at universities, i. e. 238,400; 8,500 at arts colleges, 44,200 at predecessor institutions out of which the present "Fachhochschulen" developed). The total enrollment had almost tripled by 1975 to 840,800 (out of which 680,200 were studying at universities). In 1995 it was more than five times as high as in 1960: 1,654,400 students were studying in the western part of Germany, 197,000 in the eastern part (universities 1,253,400, i. e. five times as many, and 398,200 in FHS, i.e. about nine times higher than in 1960). As long as the unemployment rate of academics is less than half as high as for other unemployed (4% versus 10%) no change of this trend can be expected.

1.1.1.4 Expansion of the number of faculty

In spite of the increase of students' numbers a comparable expansion of the number of faculty did not take place. On the contrary. The number of professors at universities and arts colleges of the former Federal Republic of Germany rose from 5,200 in 1960 to 22,200 in 1975. The increase flattened during the following years and the number reached its peak in 1987 with 24,700 and since then has shrunk to 22,400 in 1995. The number of professors at Fachhochschulen reached 8,700 in 1975 and slowly grew to 9,800 in 1995, while parallel to that development the number of students rose from 145,200 in 1975 to 398,200 in 1994.

1.1.2 The statistical trends

1.1.2.1 General remarks

Looking at the statistics one should keep in mind that in Germany during the last 30 years four important changes took place: the massification of higher education, the growing number of universities and Fachhochschulen, the change of faculty status, and German unification.

These four changes make it extremely difficult to judge the statistical changes and to draw adequate conclusions.

1.1.2.2 Institutions

In addition to what is said concerning the numbers of institutions of higher education, (the total number of which grew from 126 in 1960 to 325 in 1994, the number of universities during the same period from 33 to 88) an overview of the

Table 2

(Mill.DM)

1975	1980	1987	1990	1992
nominal expenditures				
13,577	16,817	20,497	23,446	32,769
real expenditures (in 1980 prices)				
16,992	16,817	16,940	17,816	22,460

Source: Wissenschaftsrat, Eckdaten und Kennzahlen zur Lage der Hochschulen - Stand 1996 - Table 18, p.78.

development of public expenditures at the federal and the state level will help to characterize the situation.

As most of the institutions of higher education in Germany are public institutions at the state level, these figures will allow judgement on the basis of more than 95% of the institutions, financed by more than 90% from public money.

This shows, that though growth of expenditure seems to follow establishment of new institutions, the effective support is far from meeting needs.

1.1.2.3 Students

Again two sets of numbers will be used to describe the expansion of the numbers of students: the percentage of an age cohort taking up studies at a university and the total enrollment.

Whereas in 1960 only 7.9% of an age group were registering for higher education and just 4.4% of the total population aged between 19 and 26 were studying, in 1985 the numbers were 19.5% and 18.1 percent respectively, a trend that continued and reached 34.8% and 27.2% in 1993. During the following year there was a slight decrease in matriculation to 34.0% and in the absolute number of young people studying, but the percentage of the latter was raised nevertheless to 28.8%. For the new states reliable numbers are available only since 1990 and show an increase of newly registered students from 1990 to 1994 from 18.8% to 23.6% and of the studying population from 8.5% to 14.4%. For Germany as a whole the picture during the last five years changes from 19.6% to 26.2%.

1.1.2.4 Faculty

In spite of the numerical growth of the number of positions for professors between 1960 and 1987 and the comparable growth of the numbers of other faculty and clerical and technical staff, the development couldn't cope with the explosion of students' numbers. The first efforts between 1960 and 1965 succeeded in bringing down the teacher-student ratio from 1:15 in 1965 to 1:9 in 1970, but from then it steadily returned to the value of 1:15 again for the whole of Germany in 1994. And this is only achieved by including the new states of the FRG, where the trend led from 1:4 in 1991 to 1:7 in 1994. Looking at the old states alone, one would find a ratio of 1:17.

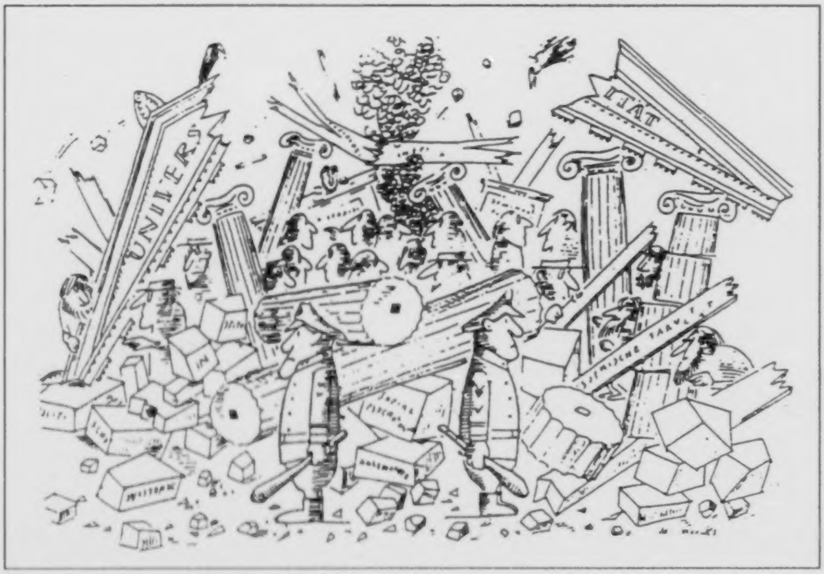
1.2 Reforms accompanying the massification of higher education

1.2.1 Reforms on the level of the national system

As mentioned earlier four changes took place during the last 35 years.

1. In the 60's the beginning of the massification of higher education followed the "Sputnik-shock" of 1957 and the discussion on the so called "catastrophe of education", by abolishing the entrance examinations to secondary education and the study fees, for secondary schools as well as for higher education. Furthermore the Fachhochschulen were established as a new type of institution of higher education. All these changes took place accompanied by the students' movement - referred to by many as students' revolt - in many European countries, creating a situation that in 1969 caused a German cartoonist, Marie Marcks, to title one of her caricatures "consultations on the reform of higher education".

2. In the 70's it was a political decision not only to found new universities to meet the demand for university education, but to change the status of existing technical, teachers' or medical colleges into the status of universities by



combining neighboring institutions or by adding one or two departments. In addition it was decided, not only to create new chairs or professorships to teach the growing number of students, but also to transfer qualified senior lecturers to the position of professor. While in some of the states this happened after a very competitive evaluation process, in others no more was needed than the signing of a law by the minister. In any case, by this means the number of teaching and research faculty was increased without an equivalent and substantial development of assisting clerical and technical staff.

3. In the 80's this political decision, was under reconsideration, and while the last lecturers were promoted in some states, amendment of the HRG in 1985 suggested reestablishment of the lowest rank of professorship by limited-time tenures for assistants of special quality.

4. Finally, there was unification of the two Germanies in 1990 and restructuring of the faculties in the eastern universities.

A plan to restructure the whole system of higher education in such a way as to merge all the existing types of institutions from universities to colleges in a so called "Gesamthochschule" (comprehensive institution of higher education) was predominant in the 70's, with institutions taking in not only students after 13 years of schooling, just like the universities, but as well students after shorter school attendance, as in the polytechnics. The federal framework of laws on higher education defined this merging as a goal in 1976. In the following years this idea became more and more obsolete, and the revised federal law in 1985 postulated the "equivalent" existence of institutions with different aims. This led not only to the replacement of "Gesamthochschulen" by universities and the attribution of the title "university" to teacher training colleges, but also to new discussions concerning the status of the non-university institutions of higher education, especially the "Fachhochschulen" (cf. above). For these, important questions were the right to grant doctoral degrees, the allocation of time and resources for research, the introduction of degree courses in the humanities and social sciences and the membership of their rectors in the standing conference of rectors of German institutions of higher education.

Present lines of general discussion are: the admission situation; the reform of studies (cf. 1.3); the institutional structure and the role of research (cf 1. 2. 3).

As was to be seen from the statistical data given above, the transformation from an elite to a mass university took place between 1970 and 1980 and a continuing trend is to be expected. But there is no general expectancy of the transformation of the system in such a way as took place in the US, opening the higher education system to everybody, according to the three step scheme Martin Trow described in 1979 "elite-mass-universal" higher education. Most people in Germany are convinced that the secondary education system in combination with the dual system of professional education is catering adequately for the needs of general education and that institutions of tertiary education should concentrate on special tasks. There is a general understanding that admission should not only be possible via the "Abitur" (the school-leaving examination after 13 years of schooling), but by different routes meeting the needs and experiences of different c.v.s.; but no general admission is advocated like that in the US or in Sweden, nor any substantial change of the admission procedure allowing a considerably higher proportion of students access to higher education as is planned for France in the coming decade.

On the contrary, every now and then voices can be heard, asking for a special entrance examination to universities, giving these institutions or even their individual schools or departments the right to have more influence on the selection of their students. Corresponding plans however, mainly in Baden-Württemberg and in Saxonia, only apply to students in fields in which selection is necessary because applicants exceed the number of available places (due to a numerous clauses, selection of up to 20% of the students a year by these means in Bavaria and of up to 40% in Baden-Württemberg is expected). A general university entrance examination in addition to the school leaving examination is nowhere discussed and will not endanger the role of the "Abitur", the highest secondary school leaving examination, as the most important prerequisite for higher education.

1.2.2 Reforms at the level of the institutions

As mentioned before, at the end of the 60's in addition to the universities so called "Fachhochschulen" were established.

Though in the United Kingdom, in Sweden and in Australia most of the non-university institutions for higher education were transformed into universities during the last decades, it is not very likely that this development indicates a general trend of convergence. Finland, Austria, Switzerland and Italy, as well as some of the former socialist countries, e.g. the Czech Republic, are aiming at stronger development of the non-university sector of higher education and sometimes cite as an example the more or less stable situation in Germany. (I assume that Prof. Ulrich Teichler will elaborate on this issue.) Reasons for this stable situation can be diverse: uneasy connotations connected with an élitist image of universities, the possibility of access to "Fachhochschulen" earlier than universities and the conviction that, in times of growing unemployment, an education comprising more practical aspects might be more useful to cater for specific needs. It is a declared aim of higher education politics of all political colours that the number of Fachhochschulen should expand (recently new Fachhochschulen were founded in Bavaria and Rhineland-Palatinate) and that the number of Fachhochschul-students should be increased from roughly 30% today to 35% or even 40% of all students.

Though the further existence of FHS in the system seems secure, there is still an unsolved problem as to the right of FHS-graduates to take up doctoral studies directly. Usually a university diploma or a masters degree or a state-examination has been required in addition even for the best graduates of FHS. Now nearly all universities have found ways to allow access to doctoral studies for specially qualified FHS graduates either by a structured and shorter way of gaining a university diploma or by offering direct access after a special testing of their qualifications for scientific work. On the other hand some politicians plan to transfer teacher education from universities to FHS. But that would require a change of legislation concerning the prerequisites for entering the highest track of public service.

Privatization does not seem to be a possible way, though more competition between institutions of higher education could be useful. This could be reached by the use of selective reinforcement strategies.

1.2.3 Changes of structure and function

Most German universities saw themselves, until the end of the sixties or even later, under an obligation to Humboldtian ideals, as communities of independent researchers, with students as novices, passing a series of initiation rites till they finally reach the highest rank they are personally able to achieve. Though this attitude has changed, most universities are still proud to offer a very broad, if not a complete spectrum of courses, not only for beginners, but up to doctoral studies, and claim that there is still a very close connection between research work and the teaching.

Due to financial shortages, politicians more and more often suggest systems of cooperation between neighboring institutions and a modularisation of courses.

Members of the universities are very reluctant to adopt such a system, as they consider the right to take doctoral examinations in their particular special fields as acknowledgement of their capacity as researchers, claiming that not only would the role of research be restricted in favor of training under any system depriving them of their doctoral students, but it would also affect the quality of teaching negatively.

This seems to be a trivial problem, which one could solve by concentrating certain courses of study at certain universities. But such a decision is not dependent only on bare facts, but is interwoven with emotions. It would touch the tradition of the German university as a place where all fields of science, social studies and humanities are offered, and would also challenge the students' preparedness for mobility, when combining majors and minors only offered at different places, risking friendships and having to look for new job opportunities and housing.

Another shortage one can observe these days is the lack of means for the proper development of libraries. Due to the shortage of funding, most institutional, departmental and also university libraries are facing the dilemma of either not being able to buy new books in order to renew their subscriptions to journals, or to give up journals in order buy books. As an example I give some numbers from the famous "Otto-Suhr-Institute" for political sciences in Berlin: during the last year orders for 174 year-books, 403 journals, 60 printed newspapers and 48 newspapers on microfilm could not be renewed.

1.3 Pursuit of Teaching Reform

1.3.1 General remarks

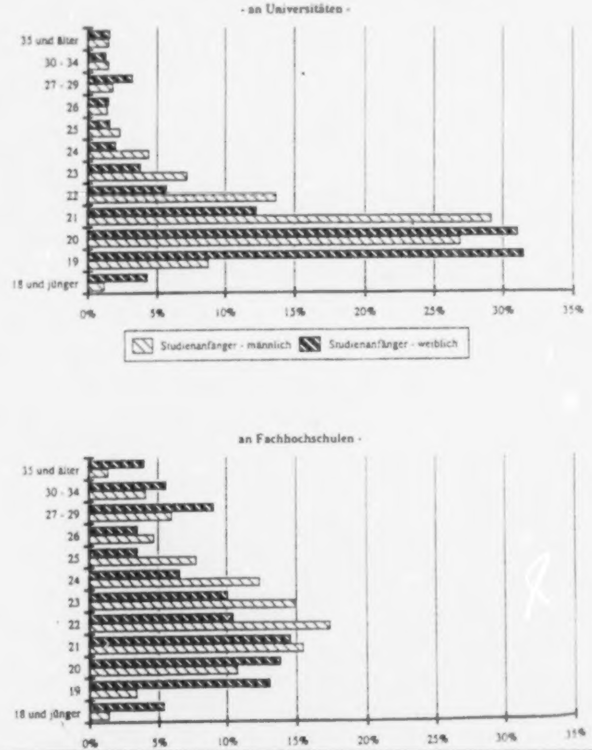
According to the recent OECD-study German pupils and students are part of the educational system for a comparatively long time: on the average 19 years pass from entering primary school to the final university or college examination. The OECD average is 3 years lower. About 25 to 30% of all students are counted as drop-outs. (HIS-Information A 1/95, p.2)

This high age of entry to the higher education system does not lead to shorter stay in the system. The average age of successfully passing examinations was slightly, but continuously rising during the last two decades.

German universities spend between DM 6000,00 and DM 15.000 per year for each of their students. That is less than in most OECD countries, but as German students are studying much longer the total costs per student add up to such an extent that only Austria and Switzerland pay more. The public expenditure for education is at 5.9% of GNP 0.2% below the OECD average. Arguments that in Germany part of the costs are not financed by the government have lost their convincing power, as in 1996 the OECD-calculations included for the first time the industry's investment in on site education. But one still has to keep in mind, that the percentage of 5 to 29 years old of the total population varies considerably between countries. Nevertheless, the government is trying to reduce expenditure for education as for all areas of public responsibility and sees the means in reform of studies, evaluation, intermediate qualifying examinations such as B.A, B.Sc. etc.

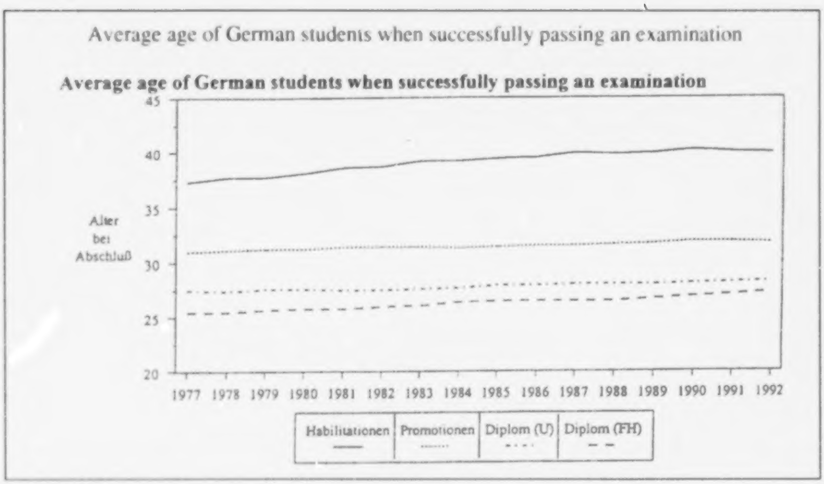
Chart 1

Newly registered German students - winter - term 1994/ 95: Age at immatriculation
by type of higher education and gender
(light coloured columns - male; dark coloured columns female)



Source: HIS-Studienanfängerbefragung 94/95

Chart 2



Average age of German students when successfully passing an examination

1.3.1.1 Present Situation of Student Massification and Diversification

Up to now in most faculties, especially in the humanities and social sciences, no system of assessment during the time of studies exists, apart from an intermediate examination in a number of subjects: the students may take sit this at the earliest after the third or fourth semester but in many cases need to fear no sanctions if they only show up for this examination after the 6th or 8th semester. And though a recommendation for the duration of studies exist, no student will be ex-matriculated if he or she continues studying to his or her 20th or 60th semester.

This situation is tempting politicians to ask for exclusion of those students, who have studied for a longer period than agreed upon in regulations and bylaws; or to charge long-time students with extra fees, which would have about the same effect as expelling them.

Therefore actual discussions suggest defining a regular time of studies of 4 years at FHS and 4.5 years at universities; requiring students to sit the intermediate examination at latest by the end of the 4th semester, to dismiss those, who cannot successfully pass it after the end of the 6th, and to seek regular proof of individual achievement.

From the point of view of the universities we get a different picture. For most of the students, financing studies is in the greatest problem though there is no tuition fee collected. Most of those studying longer than the expected time are most probably using their extra time to earn money and are - during working for the jobs - no burden for the universities. Therefore expelling them would just lead to a growing number of unemployed, intelligent people, frustrated because society had deprived them of their right to strive for the best possible education they are qualified for.

1.3.1.2 Student Groups

The main grouping of German students, though not clearly visible, is that according to the means of financing their studies. It is true, that there are no tuition fees, apart from a minimal contribution of between DM 100 and 300 per semester for the students union, health care and local transportation. But the costs of living, especially those for housing in an university system where dormitories are a rare exception, put a tremendous burden on the students and their parents.

It is true, that in Germany a system of financing studies exists, called "BAFöG", meaning Federal Education Support Law, a mixture of bursaries and loans, dependent on the parents' or spouse's income. But no more than 16% of the total student population is eligible for this scheme. The federal government and the Länder have therefore started an initiative to readjust the BAFö, including all other subsidies (e.g., tax allowances) parents get for their children during education. Altogether the average costs of study per month equal 1280 DM in the western states of the Federal Republic and 885 DM in the new eastern states. The highest support under the BAFö regulation reaches only 995 DM in the West, and 815 DM in the east. Therefore we can distinguish groups of students who are totally financed by relatives (a vanishing minority), a few others, totally and rather more, partly dependent on the federal support system, and a large group, forced to earn additional money by working during the term breaks or even during the semester.

For these the situation became even tighter during the last year, as due to the financial situation of the country, the traditional exemption from contribution to general social security funds came to an end. Up to then, students could earn as much as they were able during their schools' holidays and up to 20 hours per week during term without any payment to pension- or health-care funds. Now students will have to work more hours to have the same amount of money available as before, if they still can find jobs, as from now on the employers too will have to pay an equivalent amount into the funds for the students working with them.

The students' groupings suggested by the Japanese coordinators for this report will be described according to their financial situation.

1.3.1.2.1 Non Traditional Students

In spite of all the efforts undertaken to open institutions of higher education to children of all social groups, the typical student still is not a worker's child. The statistics on social background have been more or less stable since 1979, when children of blue collar workers made up 14% of university students (after only 4% in 1952). In 1994 in Germany as a whole they remained still at 14%: in the western states 13%, in the eastern 19%.

1.3.1.2.2 General Students

In 1994, 31.2% of the age cohort took up studies at institutions of higher education. The average age at the time of examination is 28.3 years at universities and 27.3 years at FHS. About 25 to 30% leave the institutions without taking any examination. The reasons are complex, but recent analyses showed, that about three quarters stated a growing distance from their study and its contents, while one quarter cites reasons connected with occupational opportunities.

1.3.1.2.3 Female Students

For the term 1995/96, for the first time in the history of the German higher education at universities, more female students were admitted than male: 68,000 women as opposed to 62,000 men. Due to the unfavourable labour-market many young males prefer to take up an apprenticeship or on-site training by a company, especially in the fields of engineering. The drop-out-rate, which used to be higher for females, no longer differs significantly by gender, though family reasons are still more often cited by females.

1.3.1.2.4 Adult Students

For some years a new group of students has been showing up at the universities: people after the end of their professional or working lives, who, in growing numbers, enroll not only in special courses for that age group, but as regular students, trying to fulfill their life-time wishes of an academic degree, from which they felt deprived of their chances by social or family conditions after World War II.

1.3.1.2.5 International Students

In 1994, 137,000 foreign students studied in Germany. These are 7.6% of all students. These figures are all but impressive, especially if we take into account that roughly 40% of this group are German by education, i.e., they have lived in Germany and gained their university admission certificate in Germany. Without these "Bildungsinländer" as we call them, only 4.1% of our students come from abroad.

Nevertheless, Germany is the number three world-wide as far as the intake of foreign students and professors is concerned. To keep this position, which is quite endangered, and if possible, do better, the chancellor and the prime-ministers of the Länder have agreed on a common declaration to improve the international attractiveness of Germany as a place for studies. The basic lines of action are: acceptance of foreign certificates should be more common, modularisation of study-courses should make it easier for foreign students to transfer credits into their home countries; students holding a foreign bachelor degrees should be offered special courses, perhaps in English; job-permission for foreign students; a widely acknowledged German TOEFL test; partnerships with developing countries (in December 1996 the German DAAD - the German Academic Foreign Exchange Service - just launched two new programs, one to foster cooperation between German universities and those in developing countries); and to encourage universities and FHSes to establish courses of study with a special orientation towards foreign students. If we could enroll all foreigners applying to the university of Hamburg, e.g., instead of just reserving 4% of the available places for this group, we would easily reach 20 to 30%. It can be expected that the introduction of the European Credit Transfer System will not only foster the mobility of German students but also prove to be beneficial for the number of incoming students.

1.3.1.2.6 Part-time Students

It would be interesting to compare, according to which features different countries define the status of a part-time student. Are students, working to earn their living, part-time students, even when they succeed in finishing their studies in a minimum of time? Does it make a difference for the definition, whether they are working in night-shifts as taxi-drivers, teaching freshmen, or are looking after their own children? Are students, who do nothing but studying but never sit an examination really full-time students?

In the German situation their number is difficult to calculate, as according to our system, part-time registration is not necessary. As mentioned above, it is most likely, that a high percentage of those students studying longer than the average time should be counted in this category, as there is direct negative correlation between the time available for studies and gainful employment. In the western states, one hour of employment reduces the time for studies by about 30 minutes, in the eastern states by 15 minutes. The most recent statistics based on the 14th social survey, show that during the last 6 six years (from 1988 to 1994) the number of students combining full-time study with a low additional time for jobs, dropped from 79 to 70%, while at the same time the percentage of those working for a higher amount of time in addition to full-time studies, and for part-time studies with low and high additional time for employment, rose from 10 to 12%, 7 to 11%, and 4 to 7% respectively. A general trend is that during the time of study the percentage of full-time students with little additional time for jobs drops from 77% during the 1st to 5th semester to 55% during the 11th or higher semesters; whereas the percentage of those with a heavy occupational burden in addition to their part time study more than doubles from 9% to 19%.

1.3.1.3 Decline of student competence and achievement

A common term is the supposed incompetence of German school leavers for university studies. The mere rise in numbers between 1960 and 1990 makes it easy to argue that intelligence and competence could not be equivalent for three to four times as many students as it was three decades ago. This impression is backed by a drop-out-rate between 25 and 50% depending on subjects, or 25 to 30% as the average between university drop-out-rates, as reported by the federal science council in a 1996 report, based on surveys from 1993/94 (K. Lewin, U.Heublein, D.Sommer, H.Cordier: Studienabbruch - Gründe und anschließende Tätigkeiten, Ergebnisse einer bundesweiten Befragung im Studienjahr 1993/94, HIS-Kurzinformation A1/95 January 1995). Nevertheless, this may not be specific for higher education, but may reflect a general pattern of behaviour of the younger generation, as it is reported that a comparable percentage of apprentices is giving up training as well.

Especially in summer, when the annual school reports are handed out, and around Christmas, when the new OECD-report comes out, the newspapers are full of articles and letters to the editors blaming politicians, schools, teachers, parents or the tv-industry for the lack of abilities of the young generation. The most recent example is the discussion about German pupils' position, 16 out of 26 countries in Mathematics, in spite of a comparatively high number of lessons (position 6) and a low number of pupils per class.

On the other hand, most people in Germany are very careful not to give the impression that they are asking for an elite. The abuse of this term during the time of national-socialism put a taboo on the issue of elites. Unlike many other countries there are no courses in teacher training dealing with teaching or even with consideration of gifted and talented children. And it is only very recently that politicians say openly that not only are there first-class and excellent professors, assistants and students, but also ones who are mediocre and poor. Apart from a special foundation for talented pupils and students, with a budget of DM 52.7 million, and foundations of churches and political parties, there are few special programs for gifted students. On the state level of the Länder of the Federal Republic of Germany there exists just one program for talented students: only in Bavaria an annual sum of DM 13 million is dedicated to the needs of excellent students, doctoral students and scholars working at their habilitation theses.

1.3.2 Innovation in teaching methods

During the recent years it became clear that, in spite of the theoretical assumption that all German universities were of equal standard, they differed considerably. To get evidence and to change the teaching and research situation wherever necessary, series of evaluations were launched, either by members of the universities own centres for methods of higher education, by external expertise or combinations of these two. For example, four universities in northern Germany (Hamburg, Rostock, Kiel, Oldenburg), supported by the experience of the university of Gröningen in the Netherlands, joined to evaluate every year two departments, offering comparable programs in the participating universities.

As in theory, knowledge of professors and lecturers about better teaching methods is more or less well developed since extensive debates during the end of the 60's and the beginning of the 70's, it is very unlikely that you will find (perhaps with the exception of some faculties of law, economics and sciences) a setting, in which a professor reads a script uninterrupted for 45 or 90 minutes. Most teaching is offered in seminars with student contributions, discussions, group-work and practical phases; and even the lectures very often give room for colloquial elements, where students may put questions and discuss issues with the professor or lecturer.

Therefore innovation is not reached just by suggestion of different methods, but is most likely achievable only by changing the general structure or setting of university life. Three examples may serve as illustrations.

1.3.2.1 Modularisation

In many courses the freedom of teaching and research is understood by the teachers as their right to decide what to include in their courses. The official regulations for studies and examinations are in many cases, in spite of the supervision by the ministries, phrased in such a way, that it is ever so easy to concentrate as professor on those aspects of the subject one is at present most interested in or most familiar with. This system had its justification so long as one could assume that most students were caring for the basics themselves and could profit from this vivid participation in an ongoing research process; or so long as there were so few students that the professor would notice immediately that one or other lost track of what he or she was talking about.

Under the circumstances of massification, this system led to a situation where no professor could judge the success of the students and many restricted themselves to an annual repetition of what they considered as basic information, very rarely spiced by newly gained research results, as these were considered to be too complicated for most students.

This situation requires an understanding about a sequencing of contents, so that colleagues and students likewise can trust, that an agreed upon core of information is transferred by the end of a specific course, no matter whether this had been offered by professor x or y, in Munich or Hamburg.

1.3.2.2 Multitiered Qualification

Experience of drop-outs who, as some analyses have shown are by no means either losers but very often those who were honest enough to acknowledge that higher education wasn't what they were looking for, or are daring to take up a career without holding a university degree, is seeking a change of the German examination system. Up to now, in most cases nobody presses a student to register for examination. Very often they have never had the chance to experience examination-like settings and therefore continue their studies out of fear of the unknown. And yet those, who leave the system, even if they are succeeding, still carry the stigma of losers.

The introduction of a qualifying examination, like the B. A., or the B. Sc. combined with the right to continue the studies either immediately or after practical experience outside the university would perhaps restructure the field of students in such a way, that those in higher semesters were continuing their studies, because they were aiming at a specific goal and not just because studying became a habit.

Today, B. A. equivalents are offered in Tübingen for Japanese studies, in Augsburg and Munich in Economics, in Bochum in the Humanities, at the Technical University Hamburg in General Engineering, in Jena in Mathematics and Economy. But these attempts are colliding with the fear that the typical German way of studying, i.e., educating students to independent thinking will be sacrificed to a system, where to learn by heart is more important and where the first years at universities will be less demanding than those at FHS.

1.3.2.3 Studies Abroad

The difficulties reported above with respect to the acknowledgement of courses are even more severe, when it comes to honour studies undertaken abroad. Therefore the European Union developed the European Credit Transfer System, which perhaps will turn out to serve as the starting point for a general reform of studies. Already the rector of the recently founded university of Erfurt, Peter Glotz, announced in a newspaper interview the introduction of credit points as a general means of certification at his university.

Though the interest in studying or teaching abroad is growing, the possibilities are endangered by a lack of money. The monthly supplementary stipends for studying abroad provided for students eligible for subsidies under the federal scheme (BAFöG) which reached 580 DM at the end of the 80's, are now cut back to just 220 DM per month. And what is even worse is the fact that since the last change in legislation concerning the federal education support system, studies abroad no longer extend the maximum time for which stipends are possible.

1.3.3 Improvement of student communication competence

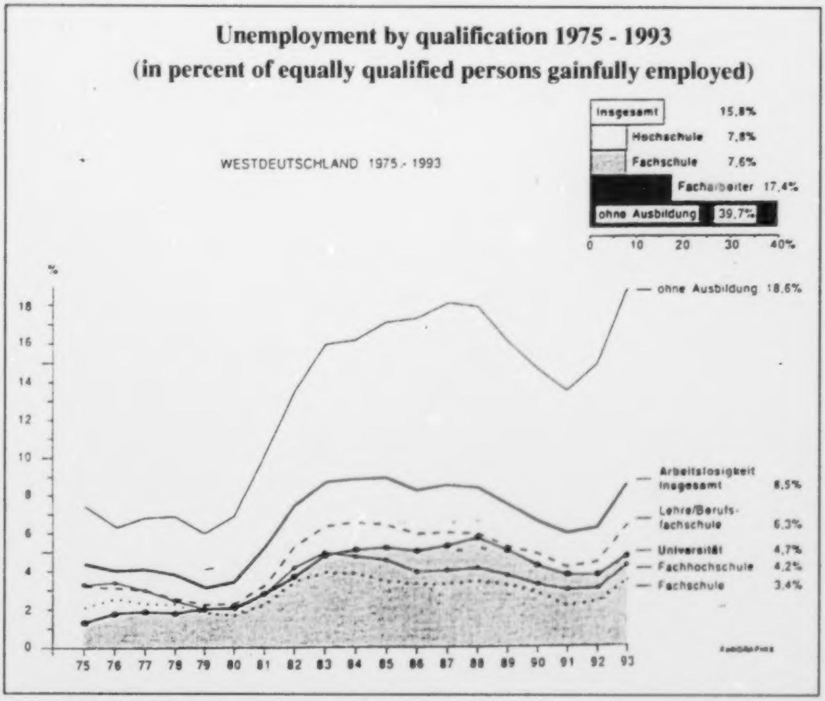
1.3.4 Further present problems

Whereas for many years an university examination was almost equivalent to a lifelong job guarantee, and even today the unemployment rate among graduates from higher education is lower than the average in certain fields, insecurity, up-to-now unknown, is influencing decisions and behaviour of university students. In November 1996 social scientists, natural scientists and lawyers had difficulties in finding their first jobs.

2 Trend of Introduced Reforms concerning Administration and Management

Germany was always proud of the cultural independence of its states, which are responsible for education. On the other hand we are living in a federation where nobody should be disadvantaged due to the fact that his or her place of birth or living is situated in a specific state. This fact led to the federal law known as Hochschulrahmengesetz (Federal Framework of legislation concerning higher

Chart 3



Unemployment by qualification 1975 - 1993
(in percent of equally qualified persons gainfully employed)

Source: Buttler/Tessaring, 1993, page 470

Education) in 1976, amended as mentioned above in the eighties and under discussion for a basic amendment just now. This framework is blamed as the reason for loss of excellence of our universities and praised by others as its guarantee. In the ongoing discussion, the states are claiming a so called experimental clause to adjust reforms to the specific situations.

2.1 Market principle and economic factors

In most of the German states the administration is planning to change the system of university alimentation according to the principles of globalisation and budgetization of the households, claiming that this would foster the autonomy. Instead of being restricted by household chapters, assigning certain amounts for certain purposes, the universities would be granted the right to decide themselves on the distribution of the allocated bulk sum, could structure themselves and decide upon fields of greater or lesser importance.

2.1.1 Background

Liberalisation of budget restraints and more autonomy for universities and FHSes in allocating the money is without doubt a way to gain more efficiency. From the perspectives of the universities however, the rationale is the fact that year after year, less money is available to support the institutions of higher education. Up to 1994 in most states the ministers for education and research seeking to claim a certain percentage of the state's budget, regularly got less than they tried to obtain; in particular, they had to pay out of their ministry's budget, among other items, the salaries, building and maintenance costs and communication fees of all institutions belonging to their realm and had to distribute the residue to the individual institutions on the basis of tradition, negotiations with rectors and presidents and individual rights, granted to professors or institutes on the occasion of their employment or renewal of contracts.

Nowadays, the governments find it more and more difficult to pay the salaries for professors, assistants, clerical and technical staff, to maintain the buildings, finance libraries etc. By giving up the traditional system of fixed funding for the different areas they had to finance, and by transferring the responsibility from the ministry to the individual institutions, they can put the blame for not being able to pay for certain necessities on the universities, forcing them to decide whether to fix a broken roof or employ a professor, whether to buy books or pay the phone-bill. And all complaints are easily answered by the ministries with reference to the universities' independence in setting other priorities. Of course, the reason for this shifting of responsibilities is never given as the necessity to save money. Instead, politicians argue that they are finally convinced by the pleas of the universities for more autonomy and are now fostering the independence of the institutions. And in the universities many people are convinced that the globalization is paying off in the same way as if they got a 10% increase in financial support. Unfortunately ministers of finance had the same impression and therefore in some of the German states the funding for higher education was cut back by exactly this percentage during the year following globalization.

Another reason often cited in favor of a greater financial independence of higher education is that abandoning the idea of financing higher education out of public tax-money is overdue - despite its importance for the public welfare; on the contrary it is said, the fact ought to be acknowledged that the burden of subsidizing higher education is placed on the shoulders of the tax-payer, but the assets are given to individual graduates.

More and more rectors and presidents of universities strive to convey the idea to the politicians that universities are an important factor for the development and the income of a city or a region. For Hamburg we coined the phrase "The university is as important as the harbour" to point out to the fact that not only jobs are supplied by the university, but that the taxes, fees and orders gained from the money spent by students and faculty equals a return three to four times as high as the tax money that is directly paid to the university.

2.1.2 Change of governments' policy

Ministers responsible for higher education on the federal and the state level plan to finance institutions in relation to their success in teaching, research and training of future scientists and scholars. This means that just a basic budget would be supplied, any extras would be distributed according to the engagement and success in the above mentioned fields, controlled by evaluation and peer and student review systems.

2.1.2.1 Deregulation

2.2 Reform of administration and management

2.2.1 In accordance with market principle

In most publications on the reform of higher education authors unanimously declare that it is not acceptable, that specialists in certain fields, like old Indian languages or laser-physics, should be responsible as deans elected just for two years for the budget of an institution of some million DM without the least knowledge about the principles of bookkeeping, personal management or marketing. Ideas of total quality management leading to business excellence are discussed in university circles. And a project sponsored by the VW-Foundation is encouraging the universities to change their administrative and self-administrative systems in such a way as to achieve better results in teaching and research with less administration.

2.2.2 Trustee systems and faculty autonomy

Considerations of installing trustee systems, by appointing governing boards on which members from outside the university, from industry, commerce, politics, trade unions etc., could be represented, are gaining room in today's discussions in Germany. At our universities many professors as well as students are afraid that, especially in a time of negative financial growth, bodies of this type would be likely to make decisions more in favor of chairs or institutes with an immediate relevance for economic success, than to care for basic research, especially in the humanities. The threat to the freedom of research and teaching seems to be immanent. In an interview in the Süddeutsche Zeitung of December 7th/8th 1996, the German Minister for Education, Science, Research and Technology, Jürgen Rüttgers, was questioned on this issue and found it hard to answer the suspicion of the threat to subjects like German studies: "Germanistics will surely not be abolished, because it is in the interest of a future-oriented society that subjects like this will exist. But if in other fields areas with praxis-relevance can be found, that will be useful for students as they will more easily find a job in these fields." Many people at universities fear, that such a predisposition will lead to a situation, where qualifications necessary for human understanding, which are not paid for in the market will get lost as well as caring for the cultural traditions and the interest in basic research.

2.2.3 Changing Structure: recent trends - top-down, bottom-up, centralisation-decentralisation

Globalized administration seem to prove useful and should be further developed. Ideas on how to optimize the chances given by this tool vary from total independence to the introduction of buffer-institutions, like those proposed by the president of Oldenburg-university, Michael Daxner, which should coordinate and filter the plans of the individual institutions in a state and replace the present responsibility of the ministries. In connection with this attempt, it is planned to strengthen the role of presidents or rectors, and requiring them to develop a unique and competitive profile of the institution.

2.3 Academic freedom and accountability

Suggestions for change of the status of university-professors from life-time tenured civil servants to part-time and or restricted-time-occupied researchers or teachers are in the view of most members of the academic society tangled with the ideal of academic freedom and independence of teaching and research. But more and more voices can be heard, stating that academic freedom should be accompanied by a system of achievement related payment. Though independence is indispensable for successful research work of a certain quality, this is consistent with a balanced system of time-limited positions, long- or life-time tenures and flexible payment.

Additional chapter: payment for professors

During the next five to ten years at most universities a deep rooted change of personnel will take place, as most professors and former assistants, who were hired during the time of new establishment of universities in the 60's and 70's are now approaching retirement. And if restructuring of the profession is to be more than just a reduction of payment, agreement upon the issues is overdue. Especially as it is to be expected that the numbers of students will continue to grow: due to recession, more of the well paid positions for apprentices in banks and the chemical industry will be reduced, and the universities and FHS will have to cater for their needs even if this is only to avoid a high unemployment rate among young qualified men and women.

Having this in mind one can hardly avoid a conviction that a joint effort by industry and science is necessary to overcome the expected problems, to allow a free flow of young, qualified people from universities to commerce and industries and back again, by having universities serving as research units for small and middle scale industries, by fostering awareness of researchers for commercial uses and needs and of companies for the usefulness of free, basic research.

3 General View: Reforms and Future

3.1 Basic problems and traits and effects of these on model construction

It is undisputed that for a country like Germany with hardly any natural resources, with an economy and labour-market three times as dependent on exports as those of the US and double as those of Japan, with permanently rising costs due to the valuation of the German Mark, investment in education should be the predominant goal to allow development of leading technology.

But after 1991 in united Germany, the total number of people employed in Research and Development has sunk from 515000 to 475000 by 1993. And it is no secret that German industry does not belong to the leaders in constructing fax-machines, electronic cameras, computers. The question is whether Germany will succeed in biogenetics and laser physics.

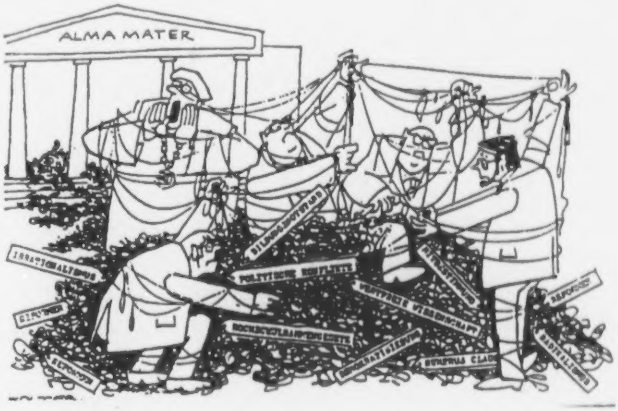
The argument that the basic law or current legislation is opposed to most of the suggested reforms can be seen by plans to abolish the life-time tenure system (as opposed to the guaranteed freedom of research), the reform of teacher education (as not in tune with the prerequisites for the payment schemes of civil servants), the privatization of higher education and the introduction of study fees (as opposed to the guaranteed equality of opportunity); the attempt to close lines of study at Berlin's universities was found to be illegal (as opposed to the basic freedom of science, research and teaching) ... In some cases, freedom of research is deliberatery restricted by law, examples are the animal protection law, the law on genetic techniques, the law to protect embryos. Very often research is complicated by impediments resulting from laws, like the one on nature conservation or data security and protection, or their fast and extreme application, as it is the case with many laws of the EU.

Closing Remarks

Therefore the question remains, what are the aims of all the considerations concerning reform of the higher education system:

- should universities educate elites, or train professionals in a job-oriented and praxis-oriented ways?
- should universities become attractive by their art of teaching or should they foster research?
- should one try to motivate professors by short-time contracts up for renewal every term or year or would no young scholar be prepared to wait for a chair by such a measure until he or she is 40 or 45 years of age?
- should one try to motivate students to reach their examinations faster by charging tuition fees or would such a measure transform higher education into a place open only to the rich and/or those who are not interested in education and research as such, but just as a means to a higher income?

I am afraid that not too much has changed since the German magazine "Der Spiegel" published Wolter's cartoon in 1972, where professors and administrators entangled in reform attempts labeled numerous clauses, framework law, democratization, irrationalism, right of co-determination and over and over again reforms, are helplessly calling for Humboldt.


ALMA MATER
IRRATIONALISMUS
BILDUNGSNOTSTAND
POLITISCHE KONFLIKTE
HOCHSCHULRAHMENGESETZ
DEMOKRATISIERUNG
NUMERUS CLAUS
RADIKALISMUS

„Huuuuumboldt!"

There is a growing feeling of uneasiness looking at the suggestions to cope with the present problems by amending the Federal framework of legislation. Just two weeks ago five leading scholars issued a paper containing five statements on the present development: asking for new priorities for the future, like education and flexible further education, highly differentiated universities of supreme standard, a framework law that is fostering innovation and competition, a policy allowing private capital to be invested in education and research.

Allow me to close with an adaptation of the closing remarks of this group to our situation:

To put the right priorities for the 21st century and beyond is a challenge for all groups of the society. This would be successful if politicians of all political parties would just do one thing: act as they promise.

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Reforms as a Response to Massification of Higher Education: A Comparative View*

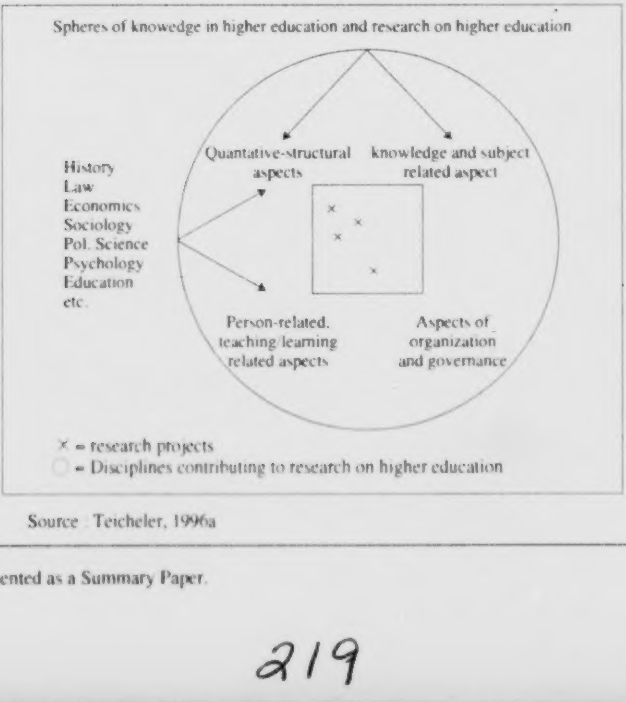
Ulrich Teichler
University of Kassel

1. Introduction

1.1 The Complexity of the Study

Changes in higher education, as a rule, are of such a complex nature that they surpass the grasp of related research. We often form the design of research projects in the field of higher education, as in other areas of the social sciences, according to the capabilities of certain disciplines, certain research methods or the areas of knowledge covered by individuals or groups of scholars.

Chart 1
Spheres of Knowledge in Higher Education and Research on Higher Education


Spheres of knowedge in higher education and research on higher education
Quantative-structural aspects
knowledge and subject related aspect
History
Law
Economics
Sociology
Pol. Science
Psychology
Education
etc.
Person-related, teaching/learning related aspects
Aspects of organization and governance
× = research projects
○ = Disciplines contributing to research on higher education

Source : Teicheler, 1996a

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*Paper presented as a Summary Paper.

As a recent summary of the state of research suggests, higher education as a field of research rests on four spheres of knowledge (see Chart 1).

We tend to analyse

- quantitative-structural,
- knowledge and subject related,
- person-related and teaching and research-related, and finally
- organisation and governance-related

aspects of higher education. Thereby, the individual disciplines relevant for research on higher education tend to be valuable each only for some of these aspects (on the state of research on higher education, see Clark, 1984; Altbach and Kelly, 1985; Research on Higher Education in Europe, 1989; Teichler, 1996b; Sadlak and Altbach, 1997). Some interesting projects try to combine more than one of these aspects, but many prefer to reduce the complexity of the scope in favour of a more stringent treatment of a smaller thematic range.

The project "Academic reforms in the world: situation and perspective in the massification stage of higher education" is a notable exception. Its initiator, Akira Arimoto, provided an ambitious conceptual framework which surpasses the limits of most studies in this domain. He wants to establish the extent to which academic reforms are considered and undertaken and to which organisational change is strived for and actually implemented in the wake of massification, notably in the transition from a stage of advanced mass higher education to a "post-massification" period.

As Chart 2 summarizes in a simplified manner, the study aims to analyse the massification trends and tries to establish their relationships to structural developments in higher education, notably the composition of the student body and institutional diversification, to academic reforms and finally to organisational reforms. In the past, various studies have been undertaken about the relationships between student enrolment and the structural development in higher education (see the summaries in Teichler, 1988; Meek, Goedegebuure, Kivinen and Rinne, 1997), graduate employment (cf. the overviews in Carnoy, 1995; Teichler 1992) as well as teaching and learning. The study initiated by Akira Arimoto is unique in addressing the links between massification and organisational change in higher education.

The study does not only provide a conceptual framework for various areas of changes linked to the process of massification, but also presents specific hypotheses as regards the directions of change. Major directions of change expected are briefly sketched in Chart 3. Of course, we know in advance that many of the directions of reforms are popular in debates on higher education reforms in the 1990s, but the study wants to go a step further in establishing the extent to which they are linked to and stimulated by the process of massification in higher education. Finally, the study wants to establish the extent to which these changes lead to stress in higher education and possibly whether it turns out to be productive or counterproductive.

Chart 2
Impacts of Enrolment on the Higher Education System - a Conceptual Framework

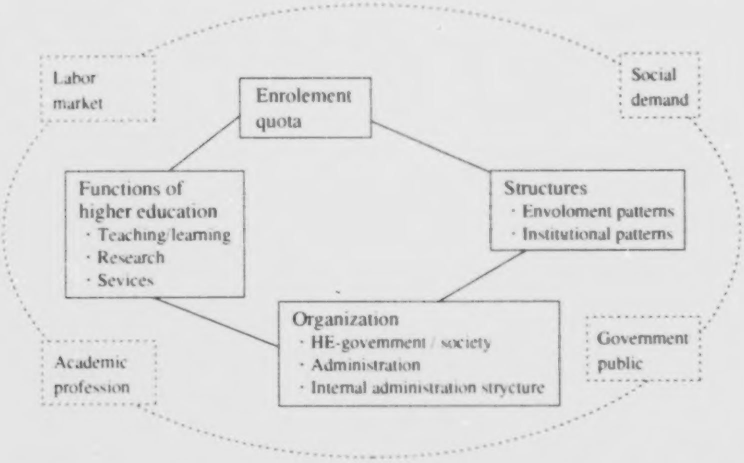
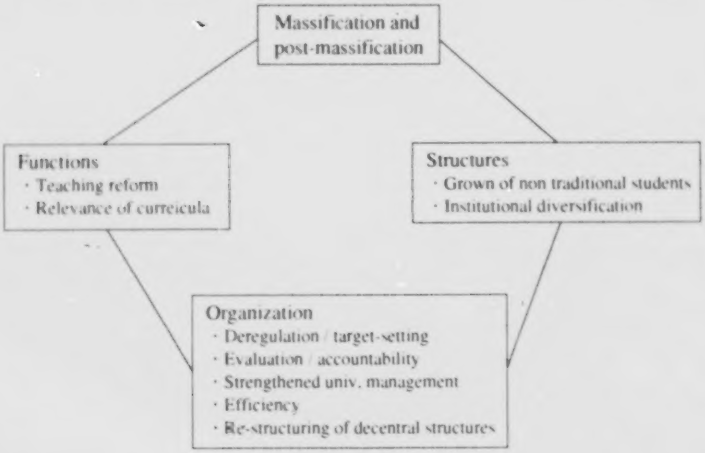

Labor market
Enrolement quota
Social demand
Functions of higher education
· Teaching/learning
· Research
· Sevices
Structures
· Envoloment patterns
· Institutional patterns
Organization
· HE-govemment / society
· Administration
· Internal administration strycture
Academic profession
Government public

Chart 3
Changes of Higher Education in the stage of Massification - a Set of Hypotheses


Massification and post-massification
Functions
· Teaching reform
· Relevance of curreicula
Structures
· Grown of non traditional students
· Institutional diversification
Organization
· Deregulation / target-setting
· Evaluation / accountability
· Strengthened univ. management
· Efficiency
· Re-structuring of decentral structures

1.2 The Comparative Approach

The analysis is undertaken in a form of a comparative study. International comparison is indispensable if macro-societal phenomena, such as the relationships between massification and academic as well as organisational reforms, are to be understood with the help of more than a single case.

Internationally comparative studies have powerful potentials, but at the same time are very vulnerable as far as the actual quality is concerned (see Teichler, 1996a). Serious drawbacks might come into play, for example, with regard to the conceptual consistency, the range of information, language and other communication issues. Therefore, the comparative project design requires careful choices.

The six-country project obviously has taken some very deliberate options:

- The concept is developed by the project initiator and forms the framework for the analytical work by other scholars.
- The study starts from hypotheses strongly reflecting the situation in a single country thereby aiming to establish whether similar phenomena can be observed in other countries.
- The study aims to examine hypotheses rather than to explore new territories in a less stringent manner.
- The country studies each are undertaken by the experts from the respective country.
- The study does not foresee new empirical data collection, but aims to synthesize available information.
- The study rests on almost readily available information on the part of experts. Authors of country studies are expected to cover a broad range of themes and analyse a complex set of hypotheses with a relatively limited amount of work.

This design is plausible and ambitious, but not without risks. Comparative studies are often stronger in exploratory than in hypothesis-testing exercises. International teams frequently turn out to be peripetal as far as conceptual stringency and parallel data collection are concerned. Finally, the collection of relevant data might be more tedious and time-consuming than the envisaged procedure cares for.

1.3 A Provisional Summary

The subsequent analysis is an exceptional element of a comparative study. The first provisional synthesis report of the six-country study is undertaken neither by the initiator of the study nor by any of the authors of the country reports. Rather, a person aims to grasp the key conceptual lines and the major findings which come into play when the draft reports are made available.

This summary report will first discuss the concept of massification chosen in the project and the major quantitative trends reported in the six country studies. Thereafter, it will summarize the information provided in the country studies on structural, academic and organisational changes and reform efforts. Finally, it will discuss the major findings in the light of the underlying concept of the study and suggest some improvements of the country studies in order to allow for a more comprehensive examination of the hypotheses presented.

2. Massification: Definition and Trends

2.1 Definition and Availability of Information

The term "mass higher education" was traditionally employed to point out a growth of enrolment beyond academic reproduction and training for a small number of occupations characterized by demanding assignments and privileged social positions. Martin Trow coined the term "elite higher education" for a state of affairs when less than 15% of a respective age group enrolled at institutions of higher education. He characterized "mass higher education" a stage when 15% to 50% had access to higher education. In a later publication he added a third stage which he called "universal higher education" , i.e. after the enrolled quota surpassed 50% (Trow, 1970).

A comparison between various countries as regards the stage of massification reached poses substantial conceptual and methodological problems, three of which notably have to be mentioned in the synthesis of this six-country study.

First, definitions of the sector of higher education vary between countries and are vague within some countries. For example, some teacher training colleges and various higher vocational colleges are often not included in overviews and statistics of higher education in Switzerland. In the Switzerland study, they are named as "post-secondary education", but the enrolment figures provided address only university students. The Singapore country study remains ambivalent whether polytechnics and other colleges, defined as "post-secondary" and whether admitting students after 10 years of prior education, should be viewed as part of higher education.

Second, statistics vary in the way they define enrolment ratios. In the country studies, we also note percentages of students, rather than of new entrant students, among the respective age cohorts (U.S., Germany, Switzerland, China), percentages of secondary school leavers transferring to higher education (U.S., Switzerland), and proportions of students among the total population (Switzerland, China), the adult population or the work force (both Singapore). Data on the proportion of new entrant students among the respective age group are only reported for Japan, Germany and Singapore.

Third, one might argue that "massification" should not refer solely to the proportion of new entrant students, but also take into account the duration of studies and the proportion of those successfully completing higher education. The German and Swiss country studies refer only to course programmes lasting at least four years and to students actually studying more than six years on average before being awarded a degree, while the Japanese and U.S. country reports address also short-cycle programmes requiring only two years of study. The proportion of those not successfully completing higher education with a degree or other certificate testifying a completion of a programme is about 40% in the U.S., 35% in Switzerland, and about 25-30% in Germany, but less than 10% in Japan. One might ask in the framework of this study, whether the inner life of higher education (for example teaching and learning as well as the organisation of higher education institutions) is most strongly affected by ratios of new entrant students, ratios of students, or by ratios of graduates. For convenience sake, however, we shall take the quota of new entrant students as main criterion, which Martin Trow referred to and which is also the most commonly employed measure in Japan.

2.2 The Current Stage of Massification

United States

Among the countries addressed in this comparative study, access to higher education has only surpassed the 50 percent mark in the U.S. The country study shows that the total number of students increased from about 12 million in 1980 to about 14 million in 1990. The latter corresponds to about 35% of the 18-24 years-olds. OECD statistics as well as various national statistics show that more than 50% of young adults enrol at institutions of higher education in the U.S. whereby about half complete at least a bachelor's degree while about half enrol as well for a shorter period, some of them with an associate's degree awarded by community or junior colleges after two years of successful study (see OECD, 1995). The data do not include post-secondary education not named "higher education" , for example proprietary schools offering courses for persons having at least completed upper secondary education.

The authors of the U.S country study call the period from the 1960s to the early 1970s "the era of massification" and the time from the mid-1970s to the late 1980s "the era of maturation" . In tune with the terminology suggested by the initiator of the comparative study, they call the period since about 1990 "the era of post-massification".

Japan

The total number of students at institutions of higher education in Japan increased from about 1.7 million in 1980 to about 2.5 million in 1995. Japan experienced a "first massification" period from about 1960 to the mid-1970s, when the proportion of new entrant students at institutions of higher education increased from about 10% to more than 35%. After a period of quantitative steady-state until the late 1980s, the new entrant quota increased to about 46% in 1995, among them 32% at universities, 13% at junior colleges mostly providing two-year courses, and less than one percent at colleges of technology, i.e. institutions combining upper secondary education and two years higher education. Japan, thus, is close to the end of the mass higher education stage, and, if the current trend continues, is likely to reach a "post-massification" stage within a few years.

In Japan, we note as well wider definitions of post-secondary education which might include vocational training schools, and in addition miscellaneous schools, training on the work place, and adult education. According to those definitions, about two-thirds or even more experience some kind of higher or post-secondary education. The Japanese country study, however, consistently addresses higher education.

Germany

In the Federal Republic of Germany, the number of students at institutions of higher education doubled from 1975 (about 840,000) to 1994 (about 1,680,000). We note similar stages of expansion as in Japan. The quota of new entrant students increased from less than 10% around 1960 to about 20% in the early 1970s, thereafter stagnated for about one decade, and rose from 1985 onwards to 34% in 1994. The most recent figure includes the Eastern part of Germany where the new entrant quota was substantially lower before the unification and only reached 24% in 1994.

It should be noted that the German data refer to students at universities, i.e. institutions awarding first degrees internationally viewed as master's, and students at Fachhochschulen, i.e. institutions awarding professionally oriented degrees equivalent to a bachelor's. The country study does not name any other post-secondary education. In fact, only Berufsakademien tend to be named as a further type of post-secondary education - an institution currently accommodating only a very small number of students.

Singapore

In Singapore, the number of students at universities tripled from less than 12,000 students in 1980 to about 37,000 students in 1995. The number of students at all institutions of higher and post-secondary education almost quadrupled to about 95,000 in 1995. The proportion of new entrant students among the respective age group in Singapore reached 19% in 1994. According to the current governmental policy, it is not expected to expand beyond 20% in the next few years. If we refer to university education, Singapore had just reached the stage of mass higher education in the early 1990s.

However, 35% of the respective age group in 1994 enrolled at polytechnics and a further 17% at other institutions of "post-secondary" education according to the definition employed in Singapore, i.e. institutions requiring 10 years of prior education. Again, the future target figures of 40% and 20% are almost realized.

Switzerland

The total number of university students in Switzerland is about 90,000. Switzerland is among the countries in Europe with the lowest enrolment ratios at universities. The country study does not provide any new entry quota. It is likely to be close to 15%, i.e. at the point of transition from elite to mass higher education according to Trow's definition, if we refer to universities which only award first degrees equivalent to a master's.

Other institutions on post-secondary level, for example many teacher colleges, technical colleges, social work colleges etc., were officially not viewed as higher education in Switzerland until recently, while UNESCO and OECD statistics have counted their students as ISCED 5 students for many years. Recently, a process of merger and upgrading of these colleges started. The newly established Fachhochschulen/Hautes Écoles Spécialisesiés are officially a second type of higher education institutions. When the upgrading process is completed, the new entrant quota at all institutions of higher education will most likely surpass 30%.

China

In China, the total number of students almost tripled from the late 1970s to the mid-1990s, thereby reaching almost 6 million in 1996 (including almost a quarter of correspondence and evening course undergraduate students and almost one quarter of the graduate students). The ratio of new entrant students among the respective age group was not named in the country study. It seems to be close to 5%, i.e. clearly in the stage of elite higher education. Currently, policy targets are set for more than a tripling of student numbers until the year 2010. The institutions of higher education in China mostly offer three-year and four-year courses.

2.3 Methodological Implications

The six countries addressed in this comparative study vary dramatically as regards the stage of "massification" reached according to the criterion employed, i.e. the quota of new entrant students at institutions of higher education according to the respective national definition of "higher education" . At the one extreme, enrolment in higher education in the U.S. already surpassed the maximum of "mass higher education" more than two decades ago; while at the opposite extreme, China is likely to reach the minimum point of mass higher education only around the year 2010. The enrolment quota at one extreme is more than ten times as high as at the other extreme.

If the study included countries such as Canada, Sweden, Norway, and Korea instead of Singapore, Switzerland and China, it could have examined whether countries at similar stages of massification experience similar changes in the composition of students, institutional structures, modes of teaching and learning, as well as the organisation of the higher education institutions. The composition of countries in this comparative study, however, is more suitable to examine whether changes in the above named areas are similar or different at the same historical moment across diverse stages of massification. Also, this study provides information on countries experiencing growth of enrolment. One could examine whether enrolment growth elicit similar pressures, i.e. irrespective of prior level of enrolment.

The initiator of the project as well as the authors of the U.S country study employed the term "post-massification" in reference to a higher education system providing access to more than half of the respective age group. In contrast to the term "universal higher education" coined by Trow, "post-massification" seems to assume that the character of this stage might be better explained by changes vis-á-vis the past than by new characteristics.

3. Composition of the Student Body

3.1 Categories Employed

It is generally assumed that the composition of the student body changes substantially in the process of expansion of higher education. While "traditional" , i.e. male, well-off students, with well-educated families dominated at times of elite higher education, the proportion of "new" or "non-traditional" students is likely to increase in the process of massification (see OECD, 1974). This increase might be due both to a change of the composition of persons willing to study on the one hand and on the other, efforts on the part of the higher education to cater for more students.

The country studies consistently address the composition of the student body according to gender. Otherwise, they refer only selectively to other dimensions, for example socio-economic background (Germany), ethnic minorities (U.S., China) and adult students.

3.2 Gender

The number of female students in the U.S. already surpassed that of male students in the 1980s and has reached about 58% in recent years. While about 40% of students in Germany were women in the 1980s, women outnumbered man for the first time among new entrant students in the mid-1990s. Similarly, the proportion of women among all students post-secondary education in Singapore increased from 38% in 1980 to 44% in 1995.

In contrast, women remained clearly under-represented in China and Japan. In China, the proportion of women increased only from 33% in 1985 to 35% one decade later in the process of almost doubling of the total number of students. In Japan enrolment of women at universities increased over the years (from 27% in 1990 to 32% in 1995), but the divide between a male over-representation at universities and more than 90% women quota in the short-cycle sector changed at most moderately.

3.3 Other Characteristics

The information provided on the age of the students in the country studies is not satisfactory. Since about 1980, more than half of the students in the U.S. are 22 years and older, whereby the proportion of those 30 years and older increased from about 20% to more than 30%. Also, the high proportion of part-time students in the U.S. (more than 40% for almost two decades) is partly explained by adult enrolment. The country study on China defined "adult enrolment" by study provisions addressing non-regular students, though they might be chosen by young students as major activity: altogether, almost half of the Chinese students are enrolled in correspondence, radio and TV education, workers' and peasants' colleges and college for cadres.

The proportion of U.S. students from ethnic minorities increased over the years and, though surpassing 20%, it has remained below average. The Chinese minority enrolment of 6-7%, in contrast, is said to be above average.

In Germany, the proportion of students, the fathers of whom were manual workers, remained about 14% since the 1970s. No respective data were provided for other countries.

3.4 Major Findings

The available data by and large confirm the view that the composition of the study body became somewhat more diverse according to socio-biographic categories. Notably, there is an increasing participation of women. However, the developments vary substantially and are not clearly linked to certain stages of massification. Obviously, other cultural and social factors are more relevant than the level of massification.

3.5 International Mobility of Students

Various country studies refer also to international mobility of students. However, the proportion of students studying abroad and the proportion of students from other countries, cannot primarily be explained by the stage of expansion of the higher education system.

The proportion of foreign students among the six countries analyzed is highest in Switzerland (20%), thereby clearly surpassing that of any large industrial society, and second highest in Germany (8%). In all other countries (see Davis, 1995, p. 81), it is below three percent, as other sources suggest. In contrast, the proportion of students going abroad is by far highest among the citizens of Singapore: the total enrolment abroad corresponds to half of the enrolment at home universities. Other sources suggest that the proportion of students from other countries addressed in the comparative study who study abroad is about 5% or less.

4. Structural Responses to Expansion

It is conventional wisdom among actors in the field and among experts that a growing structural diversity of higher education might help to accommodate the growing number of students whose motivations, competences and job prospects become more heterogeneous in the wake of the massification of higher education. Many comparative studies, however, have cautioned the view that there is a clear trend of diversification according certain criteria. Rather, the modes of diversification differ strikingly by country, some moves towards diversification tend to be counterbalanced by pressures for conformity, and it is not altogether easy to provide a clear evidence of a consistent trend towards structural diversification in the process of massification (see Teichler, 1986; Neave, 1989).

Only in one of the countries addressed was a visible structural change implemented as far as types of higher education institutions are concerned: Switzerland introduced Fachhochschulen in the early 1990s. There are also indications that some post-secondary institutions in Singapore might be considered higher education institutions in the future.

In recent years, an increase of the private sector often has been advocated, notably by the World Bank (1993, cf. the overview on private higher education in Geiger, 1986). Actually, private higher education accommodates about three quarters of students in Japan, about one fifth in U.S., and only a marginal fraction among the students in the remaining four countries included in this comparative study. No significant privatization trends can be observed in these countries. Only the China study reports that a few "non-governmental" institutions have been established recently.

It is widely assumed, both as a consequence of expansion of higher education and of budgetary constraints, that diversity among higher education institutions of the same type will increase. The authors of the U.S. study point out that the gap between studying at one of the 100 most prestigious institutions and at one of the others is widening. In Germany and Switzerland, a growing pressure of competition and for developing an individual institutional profile is seen. The author of the Japanese study, however, points out that growing pressures of competition do not necessarily lead to a wider substantive diversity, because less prestigious institutions might like to imitate the more prestigious ones rather than cultivating a specific profile. Altogether, we note increased efforts to identify and shape profiles of individual institutions, but it remains to be seen whether this contributes to a significant diversity.

Part-time degree study and life-long education provisions in higher education are further possible elements of structural diversification. As far as student enrolment is concerned, we only note a substantial increase in the U.S. and a historically high level in China. In the remaining countries, however, no sizeable activities were reported in these respects.

The data presented suggest that the countries vary in the composition of students according to field of study. In most of the countries the proportion of students in science and engineering fields is at most 40%, though students in these fields form the majority of students in China. Various country studies suggest that the enrolment by field (no matter the extent to which this is influenced by student choices and by institutional or macro-policies) might have become more instrumental in respect to possibly rising sectors of employment, but the data provided are too sketchy to draw any general conclusion.

Altogether, the data made available in the six country studies do not suffice to draw any conclusions about the relationships between massification and structural diversification: to test a hypothetical link between massification and structural diversification, a more in-depth study would be required.

The data provided in the country studies indicate another structural change in higher education which is not explicitly discussed at all. All countries experienced a substantial growth of the average size of higher education institutions in terms of student enrolment. Change of institutional size generally is viewed by some as an efficiency gain and by others as a danger of bureaucratization and growing anonymity within an institution. The question remains to be addressed whether institutional size is an underestimated factor in efforts to explain the impact of massification in higher education.

5. Conditions for and Reforms of Teaching

5.1 Changing Challenges

When "mass higher education" became a focus of debate in the 1960s and early 1970s, experts agreed that the growing number of students is bound to diversify in their motives, competences and job prospects. The "non-traditional students" were viewed to be less well prepared for study in the classical mode, were less motivated for academic pursuit of knowledge for its own sake and more instrumentally oriented and many of them had to be helped to prepare themselves for sectors of employment and ranks in the occupational hierarchy traditionally outside the domain of graduates. Institutions of higher education were expected to respond to this challenge by a mix of self-adaptation to the changed composition of students and of special measures aimed at making the non-traditional students more similar to the traditional ones and last but not least by a growing division of labour among the institutions in catering to their respective student body.

The six-country comparative study shows that the mutual adaptation has not taken place without complications. And new conditions emerged which did not necessarily facilitate optimal solutions.

5.2 Financial Constraints

In the U.S., where institutions of higher education were more strongly inclined than in many other countries to accept the educational challenges of a changed composition of the student body, the public readiness to support the teaching and learning function declined. This led to a stronger inclination of the academic profession to focus on the growing opportunities for research, and of the university management to employ part-time and adjunct academic staff as well as to increase tuition charges. This, in turn, together with the shaky career prospects, raised doubts among students not enrolled in the top universities of whether higher education continues to "pay off", as the U.S. country reports vividly underscores.

In most other countries included in the comparative study, financial pressures are felt as well as a constraint for good teaching and learning. In Germany, Switzerland, China and as well as moderately in Singapore, the student-teacher ratio increased in the period under observation. In Germany, de-facto part-time study seems to characterize at least the behaviour of about 30% of the students for which reduced financial aid is viewed as one of the main causes.

5.3 Conditions for Teaching

In addition, we note in some countries tensions between persistent traditional self-perceptions of the institutions of higher education and the actual conditions for teaching. In Japan, most professors continue to conceive themselves primarily as researchers and also do not favour a substantive differentiation of the higher education system. Compromising standards in the courses is a more frequent way of adaptation than a pro-active response to the changing student body. Japanese teachers and students both have widely accepted this state of affairs and often reacted with indifference to reform proposals in this area.

In Germany, the institutions of higher education are more inclined to uphold the traditional expectations as far as the standards of teaching and learning are concerned. As a consequence, complaints about deficient competences of new entrant students are widespread, but remedial activities remain an exception. The average actual period of study more and more surpasses the officially required one. Drop-out is a major concern. Also, the long duration of study and the high drop-out rate are among the problems often named with regard to Swiss universities.

Singapore might be viewed as an exception among the six countries. Universities offered few study places until recently, and a substantial number of the most talented young persons studied abroad. The country accumulated wealth quickly, and a rising reputation of the higher education institutions also contributed to an increase of social demand. Thus, universities remained selective. Altogether, they felt stronger pressures to respond to the changing demands of the employment system than to any "non-traditional" characteristics of students.

5.4 Reform Proposals for Teaching and Learning

In spite of the diverse economic, social and cultural contexts and in spite of the different stages of massification, we note a substantial list of similar proposals for reforms in teaching and learning or of actual changes underway in the majority of countries addressed:

- improvement and extension of staff development,
- introduction or extension of modular courses and credit point systems,
- new mixes between general and specialized education,
- practice oriented study,
- increase of options and choice in the study provisions,
- emphasis on personality development, flexibility, social skills and individuality,
- improvement of assessment of study achievements.

Reform in the directions emphasized are certainly in some respects useful for the "non-traditional students" as they were depicted more than two decades ago, and they might be a good preparation for many careers current graduates enter. One cannot explain this bundle of educational reform proposals, though, without the assumption that the "mass student" of today should be prepared for an unpredictable future and a shaky labour market. Pro-active abilities of coping with a variety of tasks and with risks are on the agenda.

Only three more distinct future elements of graduate employment and work were named as a challenge for the reform of teaching and learning. First, not surprisingly, the report on Singapore pointed out that informatization becomes a general thrust in teaching and learning. Second, several countries, notably Germany, Switzerland and China, and to some extent the United States as well, continue to set high hopes on a strong vocational emphasis of the non-university sector or other segments. Third, conviction has grown in all countries that we move towards a lifelong education society and that institutions of higher education have to adapt to this change by increased openness to part-time study and professional courses for graduates as well as by a re-design of initial study programmes and modes of learning.

Reforms of curricula, teaching and learning are obviously on the agenda. A "revolution of teaching" might be viewed as necessary, as the author of the Japanese country study points out. Nobody dares to claim, however, that a revolutionary spirit has emerged as regards teaching and learning, though remarkable efforts and actual changes were reported in various countries.

6. Changing Relationships between Higher Education and Society

Two inter-related changes of the relationships between higher education and society are observed in the majority of the six-country studies:

- In four countries, the public financial support for higher education, if measured as the relative share of all higher education expenditures, as unit costs per students or as proportion of the gross national product, declined in recent years. Exceptions are Japan which faced a relative decline in the 1980s, and Singapore, which had not highly invested in higher education previously and which experiences now a remarkable economic growth.
- In five countries, government authorities reduced some of their controls and supervisory rights as regards higher education institutions. The only exception is the U.S., where management both in private and public institutions of higher education traditionally held a strong position.A mix of financial constraints, disenchantment with societal planning, new hopes for efficiency gains through decentralized management, and uncertainties about the future of the educational needs of society explains the readiness of governments to transfer some of their traditional prerogatives to the management of the higher education institutions (see Neave and van Vught, 1991).

Globalization of budgets, offsetting controls of bureaucratic procedures, and autonomy in hiring staff were most often, though not consistently named in the country studies as modes of transferring responsibilities to higher education institutions. Autonomy in determining the number of students, the introduction of new course programmes, the rules of access and admission, the right to charge tuition and the level of tuition fees were reported less frequently as intended or realized reforms.

There is no common trend towards "deregulation" or towards "market regulation" , but certainly there is towards a smaller procedural control of the institutions of higher education by government. The Chinese government wants to confine its role to "macro control and macro management" , but still keeps a stronger say in various respects than governments in most other countries. The governments in Germany, Switzerland, and Singapore reserve to themselves substantial rights in target setting in exchange for decreased procedural steering and supervision, in company with increased emphasis on accountability. The Japanese government underscores a lesser steering role in various respects, but keeps some strongholds of procedural control, such as the appointment of ministerial staff as heads of administration and the civil service supervision of the administrative staff at national universities in general as well as the approval of new course programmes at private institutions of higher education. However, most recent debates in Japan suggest that government's steering might be reduced further.

One certainly could point at a few possible links between massification and reduced governmental control of higher education. Governments seem to be less certain about the future demands and about the need of guaranteeing the quality of the "mass sector" of higher education. This is also reflected in the "privatization" trend in the U.S. in terms of who is paying the bill for higher education. We note, however, that the aim of reducing governmental procedural controls, strengthening university management and privatizing some of the costs of higher education is almost universally advocated in recent years and has increased impact on higher education systems irrespective of their stage of enrolment quota.

The five countries recently experiencing reforms or reform efforts in favour of reduced procedural control of higher education by government are part of an almost world-wide restructuring of the relationships between higher education and government, but they are not representative of all the major components of change. Unlike, for example, France, the Netherlands, and the United Kingdom, not a single one of the five countries analyzed set up visible schemes reinforcing accountability, such as national evaluation systems of teaching, research or of the higher education institutions as a whole (cf. Kogan, 1989; Kells, 1992; Valutare l'universit..., 1995; Cowen, 1996).

7. Internal Administrative Change

All countries analyzed seem to experience some internal change. Models borrowed from management changes in private enterprises gained some popularity. The authors of the U.S. study wrote "Higher education has begun to borrow new business models from industry by downsizing, outsourcing, and re-engineering." In the countries where government played a strong supervisory role in the past, strong efforts were made to strengthen the power of the key managers in higher education, i.e. the rectors or presidents, and possibly to introduce boards.

There is a second almost general trend across the six countries as well. Academic staff in various countries lost or might in the near future loose the protection of life-time employment; and achievement-oriented remuneration is widely advocated and even implemented in some cases. In referring to Burton Clark's known triangle of academic power (Clark, 1983), the "academic guild" is obviously the main loser from recent administrative change; while a fourth power, not named in Clark's triangle at all, i.e. the higher education managers, are the obvious winners. Even in the U.S., where higher education management was strong traditionally, "faculty feels under attack" . The academic profession is expected to bridge the hiatus between constantly increasing quality demands in research, declining preparedness of the "mass students" for traditional academic teaching and learning amidst loss of social exclusiveness of the graduates as well as the paradox of a loss of knowledge exclusiveness of the academic profession and concurrently of a growing importance of knowledge in what might be called a knowledge society or a highly educated society.

Though the changes in the management of higher education, which are summarized as a "stronger top-down mode in academic organization" , are less dramatic in Japan than in some other countries, the stress put on the academic profession seems to be most strongly felt in Japan, as is shown by the comparative study on the academic profession which was undertaken in 1992 (see Boyer, Altbach, and Whitelaw, 1994; Enders and Teichler, 1995; Arimoto and Ehara, 1996). Maybe the tensions between the surviving classical ideal of academics and the changed conditions are most prominent in Japan.

Reform needs, efforts and steps towards reform in the organisation structure of decentralized units in higher education were only referred to in the country studies on China and Japan. In China, some institutions have introduced a three-level system instead of a two level system (university-department), whereby substantial management and resource allocation responsibilities were transferred to the intermediate level of the colleges. The author of the Japanese country study discusses the advantages of separating the institutional base for graduate education from that of undergraduate education, and he claims that the old faculty (gakubu) does not serve anymore all the functions of teaching and research in the best possible manner, but he does not go so far as to claim that a visible reform is underway.

It is obvious that some of the changes named in the various country studies move the internal administrative setting of higher education institutions a few steps in the direction of what has emerged in the U. S. a long time ago. In Japan also according to the author of the country study, efforts are now being made to move some steps closer to the U.S. model from the existing hybrid system in which the traditional German model of the power of government and the academic guild, more strongly shaped the public elite sector of Japanese higher education, and the U. S. model of a strong management, clearly shaped the mass private sector of Japanese higher education. This does not mean, however, that we observe a continuous trend in this direction. The Japanese country report points out reservations against a strong move in that direction, and also some European countries in which the relationships between governmental steering, universities' relative autonomy, and output assessment were more strongly rearranged than in the countries addressed in this comparative study, government did not retreat to such an extent, market forces were kept weaker, university management grew less in staff size and power, and academia was less restricted in its decision-making power than we note in the U. S.

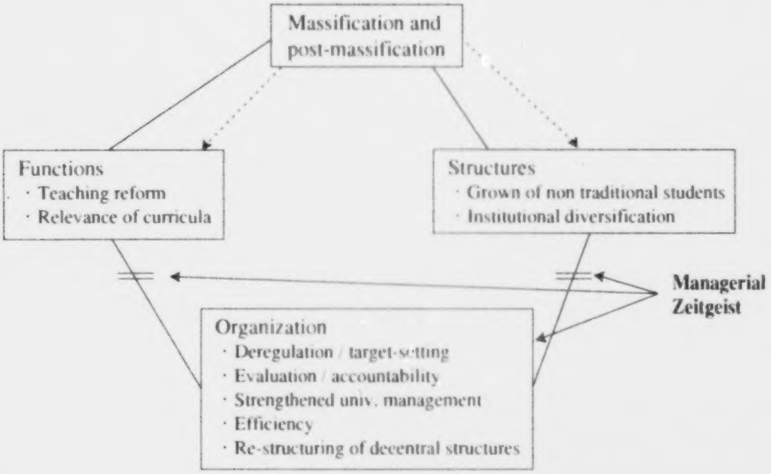
8. Massification - a Possibly Overestimated Factor

This study tries to establish the phenomenon of massification of higher education and its impact at a time where transformation to "post-massification" is a reality for a few countries and not very far away at least for some other countries. It indicates some common elements in the change of the composition of students as well as in the structural elements of the higher education system. It also suggests that some of the envisaged or realized changes in curricula, teaching and learning reflect the massification trend. A clear link, however, between massification and change in higher education is less obvious, if we analyse organisational changes, such as the relationships between higher education and society, the internal modes of decision and control within higher education institutions and the internal organisational structure. In the domain, in which the hypothetical framework of the comparative study was most ambitious, the results have to be interpreted with most caution.

The project also might have started with a set of competing major hypotheses. The assumption of an internationally widespread salient impact of the transition from massification to post-massification might have been confronted with a competing hpyothesis according to which the transition from elite to mass higher education has created similar conditions in most countries, for example an ambivalent assessment of the social and economic values of high graduate quotas. Or another competing hypothesis could be considered according to which the current administrative reform moves in higher education primarily reflect a certain "Zeitgeist".

In fact, the six-country study seems to lend the strongest support to such a "Zeitgeist"-hypothesis (cf. Chart 4). The enrolment rates differ strikingly between the six countries analysed, as do trends in the composition of the student body and the struetural development of the higher education systems in various respects. A bigger overlap of reform moods and moves clearly can be established regarding teaching and organisational change. These, however, are similar across an even broader view of massification than was covered in this study. One has to admit, though, that the "Zeitgeist" -hypothesis has to remain preliminary by definition. The underlying assumption that the phenomena are not necessarily persistent, can

Chart 4
Changes of Higher Education in the Stage of Massification - a Provisional Conclusion


Massification and post-massification
Functions
· Teaching reform
· Relevance of curricula
Structures
· Grown of non traditional students
· Institutional diversification
Managerial Zeitgeist
Organization
· Deregulation / target-setting
· Evaluation / accountability
· Strengthened univ. management
· Efficiency
· Re-structuring of decentral structures

only be examined in the future.

There are some indications as well that "massification" in terms of growth of enrolment, i.e. irrespective of the prior level of enrollment, creates similar pressures. Further research in this area would be needed.

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Commentary on the Discussion*

Keith J. Morgan
Hiroshima University

This commentary does not attempt to report the extensive discussions that took place as part of the Six-Nations Seminar. It is an attempt to place some of the issues that were raised in the discussions in a wider context. Some important topics will have been omitted. Any original ideas were drawn from the discussions, though those who originated them may prefer not to recognise the environment in which they are now placed.

The formal papers presented to the seminar all conformed to the general guidelines prescribed by the organizers. Accordingly there were available statistical data and descriptive material for each of the six participating countries. Yet from the outset it was apparent that the treatment in each of the papers, albeit thorough, did not constitute a common basis for analysing the effects of massification. Indeed, the discussion identified concern with the criteria to be used for characterising massification itself.

While the scale of student participation clearly provides the primary criterion for massification in higher education, this leaves open the questions of which students and in what higher education. Conventionally, education chooses to consider inputs rather than outputs. So it is student enrolments rather than completions that tend to be considered; and participation rates for the age-cohorts of those proceeding from secondary to higher education tend to be the immediate measures of achievement. As it happens, changing to completions and overall participation alters numbers but does not seriously modify relative measures of massification. Much more fundamental is the question of what constitutes higher education. The designation "higher education" is used variously to cover all or part of post-secondary provision. The six nations cover this wide spectrum: from tight formal structures restricted only to universities at one extreme, to open, diversified systems embracing widely differing institutions at the other. It might seem reasonable to suggest that the terminology available should be adequate to describe the ranges of provision more precisely: post-secondary, tertiary, higher, university. But for a change in nomenclature to be accepted, it will need to accommodate differing cultural perceptions: thus, in Switzerland, higher education includes only universities, excluding Fachhochschulen; in Japan it includes 2-year colleges but not colleges of technology; and in America it embraces the full range from community colleges to research universities. An international Carnegie classification might serve to rationalise comparisons and even permit collection of comparable statistics, a task which continues to defeat UNESCO.

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*This paper is a Commentary for this Seminar.

Varying national assumptions about what constitutes higher education are evident equally in assessment of the impact of massification. The effects of massification on courses, students, faculty and institutions differ markedly between those systems which identify higher education with universities and those in which it includes a diversity of institutions. So, in America, it was noted that growth in numbers of students and institutions has occurred predominantly at sub-degree level where there are now large numbers of non-traditional students, many of them studying part-time and pursuing new courses. In contrast, in countries where higher education is dominated by universities the effects appear as problems of accommodating increased participation by school-leavers in established courses and extending provision for growth of post-graduate study. In turn this suggests the co-existence of two sets of effects from massification. One set is evident in those parts of the system developing in response to non-traditional demands - the Fachhochschulen in Germany and Switzerland, the Polytechnics in Singapore, the Colleges of Technology in Japan and the Adult Higher Educational Institutions in China. The other set is evident in the universities, growing in number and size but recognisably retaining their traditional forms. The first set represents the diversity which accompany massification - favoured by governments as a means of expanding provision while containing expenditure at levels lower than for universities; encouraged by business as a source of skilled graduates able to satisfy the immediate needs of employers; and popular with students for a combination of accessibility and perceived relevance. It is academic initiatives rather than reforms which characterise this set of effects: effectively a market requirement to develop forms of organization, instruction and assessment appropriate to the needs of students and employers; the major constraints are those of academic and social status.

The contrast with effects observed in universities is clear. This is not to say that universities show none of the diversification accompanying massification but rather that their major concerns lie with stresses consequent on growth in an economic climate unsympathetic to traditional academic attitudes. Growth in scale of universities has increased awareness of their costs, both public and private. Economic arguments for expansion of universities, regularly advanced by the universities themselves, raise questions when economic returns appear to diminish and social problems increase. Two questions in particular are asked: what is it that universities do; and how do we know that they do it well?

The questions are not easily answered - and answers are made more difficult by a tendency to paranoia within universities in response to external enquiry. Beyond doubt, one of the principal purposes of universities is to prepare graduates for employment. The consequent economic benefits of investment in universities dominate public discussion. Moreover the evident benefits to graduates and the strong motivation these provide for students raise issues of balance between public and private support. What is less obvious is what universities do to achieve this. They are clearly valued for their credentials and qualifications: it appears that acceptable validation still requires expenditure of an extended period of time in a university. Increasingly though the use of this time becomes significant and subject to market forces. The traditional injunction "Study and you will be rewarded" rewarded, study has to be deemed useful; but what is useful is neither easily defined nor predicted. Technical competence in areas of study is implicit but expectations extend well beyond this to include the attributes of a wider education. It is employers who identify breadth of knowledge, critical and analytical reasoning, adaptability, and communication skills as attributes of university graduates; and politicians who seek provision for "creativity and thinking skills" in undergraduate studies. Utilitarian pressures are rightly seen as constricting study of the humanities but concurrently, professional requirements are extending studies of cultural, ethical, environmental and social issues. In these circumstances it might have been expected that universities would have chosen to set aside an apparent reluctance to affirm their wider educational role. Apart from generating "mission statements" they avoid doing so, partly because of diminished collegiality and of conflicting internal pressures: many departments and faculties have found new stimulus and resources for their economically advantageous special interests in the new external expectations.

At the same time, universities have been diverted from the intellectually difficult task of defining function by the impact of new operational factors. Universities are not immune from the spirit of perestroika and glasnost that now pervades all public affairs. A consequent combination of autonomy with accountability in public universities implies profound change in organisation. While devolution of financial responsibility is commonly identified as an accompaniment to reduced funding, both are essential components of operational change in universities. For traditional universities, a more authoritative managerial structure becomes accepted as appropriate for the now larger institutions with their wider responsibilities for finance and accountability. But the evidence suggests that application of such quasi-commercial models encounters problems within universities. In contrast to commercial organisations, re-engineering university operations is not achieved surgically but is dependent on death or retirement, ensuring that stress is retained within the institution; and out-sourcing, even in the form of part-time and adjunct appointments only displaces the stress. Similarly, quality assurance in universities is less susceptible to strategic planning, being largely dependent on the intrinsic abilities of independent academic units to demonstrate rather than assert excellence. And if maintenance of a hierarchy of institutions - reflecting the diversity implicit in the whole higher education system - is an institutional responsibility, it may fairly be questioned whether a quasi-commercial managerial model is really appropriate.

Recognition of market forces adds a new dimension to university operations. Of the three general functions - teaching, research and service - it is clearly teaching that seen to be most susceptible to the market. Economic factors influence the relative popularity of academic disciplines and courses. Increasing demand is evident for advanced and specialised postgraduate programmes offering the opportunity, as well as the desirability, of emphasis on "core competences" at undergraduate level. With expansion of numbers, quality of teaching now attracts far greater professional interest within universities. Increased numbers of academics identify teaching as their primary function: students expect to be taught by professors, not merely to learn from them. Larger class sizes require greater preparation and assessment by professors; but professorial complaints about inadequate preparation of students in school are as old as universities (and appear particularly unreal from Japanese academics). The expanded market also registers negative effects: students identify learning difficulties, changes in motivation and interests, and "drop-outs" increase. To operate, a market requires failures and universities might welcome an opportunity to expose the fallacy that learning can be either passive or easy; while change in interests and motivation are proper responses to the process of education.

The research function is also affected by the market. Growth in research has accompanied growth in the universities but with budgets failing to match growth in student numbers, internal funds for research are reduced. There is consequently much greater competition for external funds. These have increased substantially and constitute a major component of the costs of expansion of higher education. Even so, the increase has been far less than that needed to match demand. Moreover the increase has been non-uniform in that governments, funding agencies and commercial organisations naturally earmark funds for areas of their special interest. It is perhaps arguable that the desirability of obtaining research funds has led universities to be too responsive to market forces at the expense of the long-term needs of scholarship.

Education remains notorious though as an area in which the market is less than perfect. The community in general and governments in particular are unwilling to rely on the market to achieve optimal levels of education. For higher education the effects are seen both educationally and socially. Educationally they will include failure of the external market to provide for the advancement of learning and of the internal market to sustain transmission of common cultural standards. Socially they embrace the widening list of responsibilities now assigned to universities and colleges: three illustrative groups of social responsibilities might be identified as access, equity and social development.

Defying bureaucratic divisions, the concept persists that education is a seamless web from elementary school to institutions of higher education. General responsibility for post-secondary provision, both in regular courses and in continuing, life-long education programmes is carried by universities and colleges. Their entry requirements are consequently important factors in shaping the structure and content of secondary education. Many systems employ either structural or achievement criteria - and sometimes both - in restricting access to universities, a necessary component of diversity. Equally significant are arrangements for credit transfers between higher educational institutions, a process which might be expected to be a logical consequence of expansion of higher education but which in fact appears to develop slowly.

Equity is essentially a political dimension. Expanded provision for students automatically reduces youth unemployment - a benefit seldom acknowledged for those who do not, as well as for those who do, pursue further education. Universities and colleges are also identified as enabling institutions in provision of equal opportunities to ethnic and minority groupings and in some places as agents of affirmative action policies. Success in extending higher education to women is now fairly general. Additionally, higher education institutions as employers - either in the public sector or in public view - are expected to be leaders in implementing social legislation and policy. Complications arise when social policies impinge on academic freedom with the ensuing problem of political correctness conflicting with the ability of universities to criticise societal developments.

Although universities are no longer regarded merely as a convenient transition phase between adolescence and maturity, they retain a powerful role in social development. They clearly constitute a consumption good with both immediate and durable benefits. To this extent they still provide access to social as well as economic advantage. Non-university institutions of higher education are not seen to confer social advantages to the same extent, so providing a source of internal and external social pressures to reduce diversity in higher education. Increasing numbers of older and part-time students also affect the social impact of higher education. Some mature students undertake studies to satisfy personal academic aspirations: for them consumption benefits are much the more significant. In contrast, many of the new mature students have deferred entry in order to work and now study part-time do so explicitly as investment in career advancement: for them consumption benefits are either small or negative.

The facts of change are evident; the extent that change derives from massification is less clear. The problem is not due to lack of evidence of growth either in numbers or in the scale of provision of higher education. It resides in a second criterion of massification: development of educational patterns responsive to needs. Most systems of higher education now satisfy this criterion: non-traditional students are accommodated, new courses are established, employment needs are met. But most of this occurs in non-university institutions, responding to the need for academic and organisational initiatives.

Much of the discussion in the Seminar concentrated on the universities. Here there is abundant evidence of change, but change within an established university framework. It is an observation shared by many countries that universities, their staff and students, are under stress. Some part of this is due simply to numbers, some to inadequate resources, but most to organisational change. Cultural changes in managerial style, quality assurance, and the influence of the market have been concurrent with growth of numbers and many of the effects seen in universities may be attributed to these factors. It is indeed striking that Chinese universities, currently still at a pre-massification stage, have adopted changes closely similar in form to those observed elsewhere. Of course it is arguable that it is massification that has exposed universities to these external forces: previously their smaller scale provided immunity. Even so, changes in form and content of courses are not prominent in university responses.

There is perhaps good reason for this. Continuity in university programmes is an important component of a higher education system. Massification alters the environment but does not remove the need for a capacity for "elite" education. It is expected that universities will continue to meet this requirement. Universities might also carry a substantial part of the social function expected to complement the economic function of higher education. To do so it would be necessary to establish a framework for the whole of higher education. Universities might benefit from a more explicit definition of their roles and might occupy a segment where growth is largely restricted to postgraduate programmes. Massification would then be increasingly the responsibility of institutions able to adjust to varying vocational and educational circumstances. Demand fo education will continue to expand: education is good for us and massification makes it good for more of us. But the extent of its provision is limited by social priorities as well as economic needs. Ultimately it is a policy issue for government to determine its extent and the balance to be achieved by regulating an imperfect market. This involves difficult decisions and, in the absence of a clear policy to optimise social benefit, it seems inevitable that economic factors will increasingly dominate decisions about higher education.

PART II

SPECIAL PAPERS

Approaches to Mass Higher Education: A Comparison of Change in Britain and Australia*

Keith J. Morgan
Hiroshima University

Introduction

In establishing systems of higher education, many countries chose to use as models those deemed to be successful in other countries. Preferred models have varied, from the nineteenth century German model to the twentieth century American model. Over time, both the models themselves and the systems derived from them have evolved in response to differing national needs. Even so, their origins generally remain sufficiently recognisible to permit international comparisons.

One widely adopted model was that of British universities, which proved convenient as a basis for higher education in many of the countries of the British Commonwealth. Despite their varied environments and the vast developments experienced by all educational systems over the past 40 years, much of the common structure and nomenclature of these universities persists. So it is of interest to make comparisons which may indicate what changes can be ascribed to evolution of the model in response to global influences; and what are attributable to national circumstances. To this end, a comparison of the developments in British and Australian universities in recent times should be useful. In both countries, the scale of provision of higher education indicates that a mass system has superseded an elite system, yet the driving forces evident in cultural, economic and political priorities have differed widely. These influences can be expected to be reflected in the similarities and differences of the two university systems.

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*Paper presented as a Special Report of this Seminar.

British University Model

The mediaeval origins of the British model lie in the emergence of Oxford and Cambridge universities in the thirteenth century. Their establishment as institutions was to meet a vocational need for graduates to conduct the business of government, the affairs of the major landowners, and to resolve ecclesiastical and civil disputes. For these purposes teaching was arranged to provide a common educational base to which was added professional training in divinity, law and soon also medicine. This elite university system, with a role defined by this curriculum, effectively survived for six centuries.

The role of the universities was reformulated in the nineteenth century by events, novel at that time but which now appear familiar. Government identified a need to expand both the number and quality of graduates for employment in public life as civil servants and members of the professions in Britain and the British empire. At the same time, industrialists were identifying technological developments in Germany and France with the emphasis on research in their universities. Together these produced a sequence of changes: new universities were created in the major industrial centres; standards of teaching and examining were reformed; new areas of study were introduced embracing humanities, social science, science and technology; and research became established as a necessary component of the universities.[1] The changes effectively extended over the following century. By WW2 they had yielded the model which provided the basis of university developments throughout the British Commonwealth; and a university constitution that is perhaps the clearest model of an elite university system in the twentieth century.

Governance and Management. British universities are established by Royal Charter or Act of Parliament. Both Charters and Acts identify the rights, privileges and powers of the universities. Their powers are considerable: they are legal entities with the powers of independent corporations, able to enter into contracts, own property, and regulate their own affairs - effectively, engage in any activities which facilitate their work. In principle, the resultant autonomy allows each university to determine its own policies with regard to expansion, admissions, curricula, degrees, allocation of resources, appointments, promotions, rules, regulations and discipline. In practice this freedom is constrained, by limitations of funding, by convention, and now increasingly by direct intervention by government and government agencies.

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[1] Reform of the civil service, requiring entry by examination rather than patronage, was a major reason for establishing Royal Commissions to advise on reform of the universities of Oxford and Cambridge. Dedate on the role of the English universities was intense. Essentially this was an argument between the virtues of the new German model favoured by Pattison in Oxford and later by the founders of the new "civic" universities; and Newman and Jowett's belief in the primacy of teaching as a basis for provision of the educated elite required by the nation and the empire. It is perhaps noteworthy that in the nineteenth century, the elite universities chose to identify their essential role as that of teaching.

The managerial structure of the university, also defined by the Charters and Acts, identifies two principal bodies: a Council and a Senate. The Council is normally described as the supreme governing body of the university; historically all decisions were taken by the Council but now, by convention, all academic issues are referred or delegated to the Senate, which is said to constitute the supreme academic body of the university.

A Senate will meet about once a month throughout the academic year. Its membership will be large: it will contain all deans, heads of departments, many (though usually not all) professors, representatives of non-professorial staff and of students. Its business will include admissions, teaching and research, academic services, syllabuses, examinations, planning, resources and allocations, public relations..... It will also be empowered to raise any matter which is thought to be of interest and concern in the university. Often a clear consensus of academic opinion emerges but not infrequently decisions need to be reached by voting.

The Council is usually a much smaller body with perhaps 20-40 members. Of these, less than half will be academic staff of the university; the majority will be people from outside the university ("lay-members"). It will meet some 6 to 8 times a year. After having delegated academic business to the Senate, its responsibilities are essentially for the resources and assets of the university: finance, real estate, employment, legislation (and litigation), welfare, commercial activities and facilities. The lay-membership of Council will include people from industry and commerce, the professions, and the local community. It will expect that amongst its lay-members are those with expertise in the chief areas of its responsibilities - notably finance, building, employment and the law. In each of these areas the Council will have a specialised committee, normally chaired by one of the expert lay-members.

Funding. Universities are dependent on Government for their funding. This is provided in the form of a block grant: that is, a lump sum of money is provided for each university without limitation on how it is to be spent. The university decides its own budget and the distribution of expenditure on staff, equipment, maintenance, library, administration and so forth. Any surplus or deficit is carried forward. The freedom and responsibility conferred by the block grant constitutes a valuable component of the principle of university autonomy. In practice, this freedom was always severely constrained and within the block grant the extent of financial autonomy is small. In the 1950's the block grants provided for levels of expenditure which sustained historic spending patterns, provided for growth to meet agreed targets and were assured for 5-year planning periods. The continuity of demand for funding existing academic programmes meant that even then this provided little flexibility of funding without special grants for innovations. The block grant contained support for research under the so-called "dual-support system": funds within the block grant were expected to cover the costs of the essential infrastructure for research in a university - library, working space, laboratories, basic supplies. Support for specific research projects was expected to be obtained from other sources, commonly from government funded research councils or other bodies.

Transformation from Elite to Mass Higher Education Systems (1960 - 80)

(1) Britain. Growth of provision of higher education in Britain was slow during the first half of the century. The participation rate at the age of 19 rose from 1% in 1902 to 2% in 1938. After WW2, growth accelerated with participation reaching 5% by 1950 and 8% by 1960. Moreover a combination of greater economic demand for graduates in employment and social expectations of access to extended education increased pressures on universities and colleges. Retention rates for completion of secondary school doubled during the 1950's and competition for university places became increasingly severe. Government responded to the pressures by appointing a committee of enquiry into the future of higher education (Robbins Committee). Their report identified a need for substantial and continuing growth of provision for higher education; its recommendations, accepted by Government, included creation of new universities, expansion of education in technology, and extension of courses in colleges of education.

The Robbins report envisaged rapid growth in the number of students (Table 1), increasing by a factor of 3 over a period of 20 years. Ambitious though these numbers seemed, the rate of growth in the early years was about double the expected rate. Despite the creation of fifteen new universities (including 6 colleges of advanced technology), the proportion of growth in the university sector did not increase: some 60% of the expansion in numbers took place in colleges of education and technical colleges. Three major factors contributed to this result.

Table 1. Number of Students in Higher Education in Britain 1960-80.

(thousands)

	1960	1965	1970	1975	1980
Full-time Students					
Prediction (Robbins)	(179)	290	344	433	558
Actual		309	455	514	535
Part-Time Students					
Prediction (Robbins)		139	202	183	196
Actual		124	166	220	292
Total Students					
Prediction (Robbins)		429	546	616	754
Actual		433	621	734	827

[1] Expansion of the universities was planned on the assumption that they would continue to function as "elite" institutions. This was implicit in the projections of the Robbins report, both conceptually and by virtue of the component of manpower planning it contained. The manpower planning element - which necessarily assumes extrapolation from the pattern of existing provision - was reinforced with subsequent estimates of national need for engineering, science and medical graduates. Universities, while welcoming the opportunities for growth, remained committed to their existing structures and patterns of activity. Numerically much of the initial growth had to be provided by established universities and was achieved simply by expanding existing faculties and departments. The newly created universities, despite an initial enthusiasm for broadening the educational base, rapidly sought academic respectability through conventional programmes.

[2] Even while the first expansion was occurring in the mid-'60's, there was criticism of a perceived lack of urgency in universities' responses to the pressure for increased enrolment and of their alleged failure to provide courses of relevance to national needs. Against the advice of the Robbins committee, the Secretary of State for Education in 1965, proposed structural development of the non-university sector of higher education by establishing polytechnics. Based on the large colleges of further education and education under the direction of local government, the first 25 polytechnics were established in 1967. They were seen to be complementary to the universities, offering degrees in subjects either not taught by them or in subjects where numbers of graduates fell short of national needs; but also providing sub-degree courses and advanced courses relevant to local needs. The polytechnics were controlled and funded through local government; their courses were validated and their degrees

awarded by a new body, the Council for National Academic Awards - which was required to maintain standards equivalent to those found in the universities.

By virtue of their origins in further education (i. e. post-secondary but not predominantly at the level of higher education), the polytechnics succeeded in achieving at least part of the educational and social-engineering aims of mass higher education. Their students were drawn from a significantly wider social background. A high proportion of them were non-traditional students, under-achievers, early school-levers with few or low academic qualifications; and a high proportion of them were mature or part-time students. Consequently, a substantial part of the growth of enrolments in the 1970's in excess of that predicted by the Robbins committee was due to expansion of the polytechnics, particularly in the numbers of part-time students.

The polytechnics introduced new cross-disciplinary courses, many of them modular or combined with business or industrial experience. Their major failure was an inability to persuade students to choose courses in subjects deemed nationally desirable: the dominant academic programmes were not engineering, science or business studies but the social sciences, and notably sociology.

[3] Finance. Acceptance of the Robbins report in 1963 had committed Government to full funding of higher education. This entailed provision of operating costs and capital provision to universities and, through local government, to the polytechnics and other colleges. Moreover, all British students became entitled to maintenance grants and payment of their tuition fees which became a charge on Government through transfer payments to local government. In the expansive '60's the additional costs were regarded as part of a justifiable investment in the "white-hot technological revolution" to which higher education would provide access. By the 1970's, oil crises and economic recession made the rising costs increasingly difficult to sustain. It became politically significant that expenses in the polytechnics were substantially less than those in universities. Lower unit costs in the polytechnics were attributable in part to the absence of provision for research, and their part-time students required lower maintenance grants; in contrast the universities argued that any reduction in their funding would imperil academic standards. In consequence, through the 1970's, Government saw the polytechnics as an effective means of dealing with growth in demand for higher education, and did not seek to restrain the enthusiasm of local government for expansion of their institutions.

At this time, implementation of Government policy on higher education was largely indirect. For the polytechnics, discussions of policy were included as a minor item in the annual budget discussions of transfer payments from

Government to local government; for the universities and more generally, discussions involved the University Grants Committee (UGC).[2] Established in 1917, originally to receive money from the Treasury (Department of Finance) and to divide it between the universities, the UGC had over time assumed a dual role. On the one hand, it advised Government of the needs of the universities and on the country's needs for higher education; and on the other, it offered universities persuasive advice on the plans of individual institutions, was well informed of their current activities, and monitored and co-ordinated their developments. Notably it effectively eliminated political interference in the work of the universities despite their dependence on Government funding and it succeeded in implementing the huge growth in higher education. However, the scale of this growth contained the seeds of collapse of this consensual arrangement. Government found it increasingly difficult to delegate responsibility for the now substantial funds required by the universities or to accept the apparently open-ended advice from the UGC for a university system which was not evidently responsive to national priorities.[3] Nor was it clear, with establishment of the polytechnics and their equally open-ended demands for resources, that the UGC could continue to act as an adequate alternative to a national policy and planning body for the whole of higher education. At the end of the 1970's a change of Government provided the occasion for a more explicit and extensive intervention by Government in higher education.

(2) **Australia.** The first universities in Australia were founded in the 1850's: at Sydney (1851) and Melbourne (1853). By 1911 the number had grown to 6, one in each of the capital cities of the six States; there were no further additions until after WW2. Their structure was modeled on that of British universities as were their courses; and many of their academic staff were graduates of British universities.

Up to the 1940's there was little need for growth or expansion of the universities. Apart from the professions, law, medicine, engineering, and teaching, there was little demand for university graduates. Student numbers remained low,

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[2] Exceptionally, the Department of Education and Science implemented policy in higher education through its responsibility for the supply of school teachers. A belated decision to reduce provision for teacher training with the end of the post-war baby-boom caused many of the small, residual colleges of education to amalgamate with the polytechnics or to polytechnics or to diversify into colleges of higher education - essentially liberal arts colleges with courses accredited either by CNAA or by universities.

[3] This was made explicit in 1969 when the universities chose to ignore advice from the then Secretary of State - who was well known to be sympathetic to the needs of the universities. She noted that "university pursuit of excellence needed tok be tempered by the need for greater economy and more evident consideration of national needs".

14,000 in 1939. Nor were the universities expected to engage in postgraduate work or research. Government funded research was essentially devoted to solving practical problems and was concentrated in the Commonwealth Scientific and Research Organization (CSIRO): no Government funds for research were provided for the universities.

The situation changed rapidly after the war. By 1950 the number of students had doubled (30,000) and doubled again by 1960 (Table 2). Demand for university places grew, initially from ex-servicemen, and subsequently as a consequence of increased demand for graduates in expanding public services and industry. Increased national wealth from growth in international trade encouraged the Commonwealth Government[4] to provide increased support and in 1957 to establish an enquiry (Murray Commission) into national needs for higher education. Their report identified a need for expansion in numbers to meet needs of the workforce for graduates, in scope to accommodate research and to raise academic standards, and in scale to provide better resources and funding. The recommendations were accepted.

Table 2. Number of Students in Higher Education in Australia, 1960-1980

(thousands)

Student Enrolment	1960	1965	1970	1975	1980
Universities	53	83	116	148	162
Advanced Education	-	24	38	125	165
Total	53	108	153	273	328

By 1960 the number of universities had grown to 10 and a further 9 had been added by 1975; numbers of university students were growing at 6% per annum, post-graduate degrees were well established, and research flourished, assisted by awards of Nobel prizes to Australians. But an economic recession in the mid-1960's caused the Federal Government to review its policy for higher education. It registered that universities - and in particular research - had already become an expensive commitment. A cheaper alternative "much more modest than the present university system" was sought. An extensive study (Martin Committee) considered the Californian system of junior and senior colleges but this was rejected in favour of developing existing technical and teacher training colleges to constitute an "advanced education sector". The colleges of advanced education (CAE's) were to be different from and complementary to the universities, offering courses to diploma - not degree - level, and not involved in postgraduate courses or research. They were to emphasise good teaching and be primarily vocational, equipping students for the practical world of industry and commerce. In contrast it was emphasised that the universities, as well as teaching undergraduates to degree level, could now be encouraged to withdraw from their limited provision of sub-degree level work and concentrate on meeting national needs for postgraduate courses, research and research training.[5]

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[4] The Commonwealth of Australia is a federation of States. The government is conventionally known as the Commonwealth Government, to distingish it from the States (which are also commonwealths).

The CAE's were successful in attracting students, growing at about 15% per annum, largely because it was apparent that their graduates were well-suited to the emerging professions associated with expansion of health, welfare and administrative services. Despite the original prescription, they also developed academically, awarding degrees, providing postgraduate courses and undertaking research, an evolution attributable to the traditional divergence between Commonwealth and State control combined with academic aspiration.

Constitutionally, education in Australia is an area reserved to the States rather than the Commonwealth Government. Universities and colleges are established by legislation in the State parliaments that requires annual reports on their academic, financial and social activities. Initially funding for the universities was provided exclusively by the States. The financial situation changed when, during WW2, the States ceded responsibility for income taxes to the Commonwealth Government. The Commonwealth Government subsequently accepted responsibility for funding higher education: in the 1950's with grants which matched State grants to universities, in the '60's extended to CAE's, and in the '70's by the Commonwealth Government assuming full responsibility for funding higher education.

Planning was also divided between Commonwealth and State Governments. The Australian Universities Commission (AUC) was established in 1957. It received general advice from the Commonwealth Department of Finance about overall enrolment and the funding that might be expected over a 3-year planning period. Its detailed recommendations to Government were made following submissions and discussions with universities and State ministers of education. Both the AUC and a parallel Advanced Education Commission subsequently established in 1971, acted as buffers between Government and institutions much as did the UGC in Britain.

To serve their needs, each of the State Governments developed its own advisory and planning body. These bodies co-ordinated State-wide developments of the CAE's with considerable restraint, largely because they required allocation of State funds until the Commonwealth Government accepted full responsibility in 1974. Subsequent relaxation of State restraint contributed to a period of increasing conflict between the CAE and university sectors and between State and Commonwealth Governments in three discrete areas.

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[5] It is noteworthy that the binary systems in Australia and Britain were established by political decisions contrary to advice from their advisory committees (Martin, Robbins).

1. Continued growth of the advanced education sector saw it equal the size of the university sector by the end of the '70's. There were though 5 times as many CAE's as universities. The Commonwealth agencies became concerned that the existence of too many small institutions implied both inefficiency and inadequate educational provision. Pressure was exerted on the States to close or amalgamate some of the smaller colleges. The prime purpose became one of reducing costs, but since no staff were to be made redundant this proved an elusive goal.
2. Accompanying growth in size was also academic expansion of the CAE's into degree and post-graduate courses. The initial constraint on the CAE's, to teach only to sub-degree diploma level, was rapidly relaxed to meet demands for graduates in areas neglected by the universities. This, and a subsequent move to provide vocational postgraduate diploma courses in areas of colleges' specialisations, were both supported by the State planning bodies. The universities opposed these developments, reserving their rights as autonomous bodies to provide courses in any areas irrespective of attempts by the State planning bodies and the CAE's to co-ordinate total provision State-wide.
3. But even more acute was the question of research. The universities had accepted their research function - and the accompanying funding - with enthusiasm. Research was seen to be the distinguishing feature of universities as educational institutions; academic staff rapidly identified research as an effective element in career development and the only route to professorial status. On the other hand, most of the academic staff appointed to the CAE's were graduates of the universities, with postgraduate degrees awarded for research. They brought both individual competence in research and recognition of its value in academic advancement. Institutionally the CAE's did not resist these pressures from their academic staff. The resultant conflict focused on research funding. The universities were alarmed that part of their existing research funds might be diverted to the CAE's. Government, after having discovered that research in universities was a continually expanding charge, were certainly not willing to provide additional funds. Even so, despite nominal exclusion of research from the functions of the CAE's, Government finally accepted that research might be conducted in the CAE's provided no additional

Government funding was required. By this time it was apparent that the conceptual binary divide separating the CAE's and the universities was no longer sustainable.

The Emerging Systems, 1980 - 1995

Inadequacies and instabilities evident in both British and Australian systems of higher education 15 years ago have resulted in major changes. In both countries, Governments have abolished the binary systems, extended their powers of direct control, increased demands for accountability and quality control, published plans for continued growth without additional funding. Legislation in both countries to implement these changes was enacted in the years between 1988 and 1992, but significant changes occurred throughout the 1980's. The changes continue as a result of emerging economic and political agendas. Rather than seeking a rational pattern in the erratic sequence of developments, it is probable more useful to identify the impact of the changes on a range of institutional interests and activities and it is this that attempted in this section.

1. Britain

[a] Planning and legislation.

The most immediately obvious result of the Further and Higher Education Act, 1992, was to abolish the binary system and remove the distinction between polytechnics and universities. All have now adopted the title of university and with it the powers of autonomous, degree awarding institutions.[6] As a result higher education in the United Kingdom is now provided by some 115 university institutions together with 65 small colleges of higher education. The Act also established new planning bodies, Higher Education Funding Councils (HEFC), one for each of England, Scotland and Wales, to implement Government policy and to distribute funds to the institutions. Unlike the UGC, the HEFC are bodies reporting to the minister with responsibility for the new Department for Education and Employment.[7] The HEFC are required to establish funding and performance contracts with each institution based on market factors: numbers of students and quality of academic performance. Selectivity in funding for both teaching and research is implicit in these contractual arrangements. The policy is intended to encourage universities to diversify according to market criteria. The Department and HEFC interpret this in terms of institutions with differing roles: a small group engaging in research across the whole university, a large group fully committed to teaching only, and a third group of universities with provision for research but only in a limited number of areas. It is already apparent that any conceptual argument is not whether this is a suitable structure for the system but whether market forces are sufficient to establish it. HEFC has indicated that it proposes to exercise central intervention in order to regulate the market effectively.

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[6] Where it is useful to distinguish between the older universities and the former polytechnics, I designate the latter as "new (1992)" universities. This removes ambiguity from the designation "new" universities which had been regularly applied to those created in the 1960's. At the time of their creation it was suggested that, in due course, they would displace some of the older universities in the hierarchy of prestige. Attribution of excellence for research and teaching, achievement of popularity with students suggests this has now happened. The "new (1992) " universities will note that the process took a quarter of a century.

[7] The change in name from the Department of Education and Science is interesting. The change follows that of the comparable Australian Department of Employment, Education and Training, where it is seen that employment takes precedence over education.

[b] **Funding.** Total income for higher education in the UK in amounted to 10 billion pounds (about $16 billion) in 1995. Of this, 44% was provided directly through HEFC and a further 12% by government for tuition fees. Although universities retain their rights, as autonomous institutions, to undertake work in any areas they choose, HEFC funds may only be used to support work in approved areas. Three separate components of HEFC funding can be identified (a) teaching, (b) research, and (c) capital funds. The major component is teaching: funds for this are determined by the number of students and the approved range of subjects in each university. Research funds currently amount to about a quarter of the total and are distributed on the basis of a research assessment exercise. Capital funds provide for buildings and equipment: at present they constitute about 10% of the total but estimates indicate this will be reduced to about 5% in 1997. Teaching and research funds are both to be selectively distributed according to assessments of the quality of performance. For research this is already implemented with the result that for individual universities the research component varies from 5% to 50% of the HEFC grant.[8] The funds for each university are still provided as a block grant, but those sections whose excellence generates additional funds expect this to be reflected in their resources.

HEFC funding has been increasing, in real terms, at an annual rate of about 3% while the number of students has risen at about 8% per annum. Consequently, the unit of resource, that is the average level of funding per student, has decreased by 20% since 1988 and is planned to decrease by a further 20% by 1999. Despite concern about academic standards, it is unlikely that this trend will be reversed as student numbers, and hence total costs, can be expected to rise with the increase in size of the entry-age cohorts over the next years. Proposals to charge tuition fees are under consideration but are seen as politically unacceptable by both government and opposition parties.[9]

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[8] Separation of funds for teaching and reseach satisfies a long-held ambition of central planning that increased provision for (say) economics students should not carry an automatic increase in the quantity of economics research.

[c] **Students.** A major achievement of higher education in Britain has been the huge increase in student numbers over the past 15 years (Table 3). This has been achieved despite a decline in the size of the entry-age cohorts at the end of the 1980's. Participation rates have doubled, from 14% in 1985 to 31% in 1995. This is still well below that achieved in many other countries but, from the latest available OECD figures (1994), the completion rate (27%) is significantly higher than that of other European countries and lower only than those for USA (32%), Australia (32%) and Canada (30%). Women, constituting just over one third of all students in 1980, achieved parity of numbers with men in 1994 and now are in a majority (51%).

The number of students completing secondary school and achieving entry-level grades for universities will continue to increase over the next years. Demand for entry to the universities may not remain at the existing high level. Recent figures indicate that applications for admission are now increasing much more slowly than in recent years; and in the areas of science and engineering a considerable short-fall in the number of applicants is predicted. A contributory

Table 3. Number of Students in Higher Education in Britain, 1980-1985

(thousands)

	1980	1985	1990	1995
Full-time students	535	600	740	1107
Part-time students	292	337	410	518
Total Students	827	937	1150	1625
Participation rate	13%	14%	23%	31%

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[9] The Treasury remains unsympathetic to universty needs because the system as a whole has accumulated reserves from earlier years. It is argued that it is inappropriate for publicly funded bodies to hold substantial reserves separately from annual funding provision: government departments are not able to do so. The reserves, as distinct from endowments, are derived from public funds. However, their distribution is uneven, and where they exist it is generally as part of provision for structual maintenance (which is in a state of serious neglect); the level is now below what would normally be accepted as prudent for commercial operations. Perhaps these argument have persuaded the Tresury to relent a little. The budget provision for higher education was increased in 1996 by 200 million pounds over the next years; even so the unit of resource will continue to decline by about 2% p. a.

Table 4. Sources of Income for Students in Higher Education in Britain 1989, 1995

Year	Total (pounds)	Grant	Parents Loan	Student	Earnings	Gifts	Loans	Savings	Other
1988/9	3031	38%	32%	-	6%	9%	4%	4%	8%
1995/6	4575	23%	22%	14%	14%	11%	6%	6%	4%

factor is seen to be the end of maintenance grants for British students. The traditional view - that it required full-time students supported by maintenance grants rather than part-time workers to cope with the intense and specialised degree courses which characterise British universities - is no longer accepted. Over time, the value of maintenance grants has diminished, and they are now being replaced by a low-interest, Government-sponsored student-loan scheme with repayment linked to post-graduation earnings. Changes in the sources of students' income are shown in Table 4.

A significant change in enrolment pattern is provided by the increase in numbers of mature and part-time students. Over many years a high proportion of graduate students has been part-time (1995, 55%); now there is an increased number of part-time undergraduate students (16%). They are found predominantly in the new (1992) universities where the larger number of modular programmes proves convenient for part-time study. Most teachers see mature students as valuable additions to classes, identifying them with high motivation and good working habits. Unfortunately it appears that mature and part-time students, for non-academic reasons, remain less likely to complete degree programmes.

[d] Staff. The total number of academic staff in the universities was 115,000 in 1995; the majority, 83,000, undertaking both teaching and research but 35,000 involved solely in research. The proportion of those in senior appointments has stayed fairly constant at about 9% for professors and 24% for the equivalent of associate professors (readers and senior lecturers). The proportion of women has increased significantly, from 14% in 1980 to 30% in 1995; but the numbers of women professors (540) and associate professors (3,400) constitute no more than 7% and 17% of the totals in those grades.

Accompanying the increase in student numbers, the numbers of academic staff have also increased but not at an equivalent rate.[10] The staff/student ratio has decreased from its historic value of about 1:8 to about 1:15 (1995) though there are marked differences between the "old" universities, which retain substantially better ratios than the "new" (1992) universities. Given that total staff costs constitute well over half of university expenditure, decline in staff/student ratio is likely to continue as the unit of resource is reduced.

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[10] Student numbers have been increasing at an annual rate about 8%; staff numbers about 2%. It is interesting that the number of those in senior positions has been increasing faster than those in junior positions: professors, 5%; readers and senior lecturers, 2%; lecturers, 0%.

Significant financial savings have accrued from limiting increases in academic salaries to increases in retail prices since 1987, despite reasonable claims that productivity has been increased. The result is that relative to average earnings and schoolteachers salaries, they have declined at about 2% per annum. Even so, there has been extensive retrenchment, often accompanying academic restructuring but also seeking savings by replacing senior with junior staff. The vast majority of retrenchment has been through non-renewal of fixed-term appointments, voluntary redundancy and early voluntary retirement. Under the 1992 Act, academic tenure was abolished. Essential protection of academic freedom for teaching and research has been incorporated in university legislation to prevent improper dismissal; but termination of appointments on grounds of redundancy or financial exigency is now possible.[11]

The combination of increased work-loads, reduced career expectations, and clear perception of lower professional status has had a marked effect on staff morale. A recent survey indicated that 80% of academic staff in the new (1992) universities would seriously consider accepting early retirement if it were offered to them: the average age of academic staff is 40 with only 35% aged 55 or over.

[e] Management and Administration. An illusion that universities remained self-governing communities of scholars contributed to an assertion that by 1980 they had become both unmanaged and unmanageable. The expansion which they had managed to achieve in the '60's and '70's rendered many of them equivalent in size to major commercial institutions. As such, they were seen to need commercial management structures in order to become fully accountable. A Government enquiry into the effectiveness of management in universities (Jarratt Committee) reported - to general surprise - that there were no significant inefficiencies. It did though identify a need for closer co-ordination of academic and financial planning. This, together with demands for greater public accountability, has generated a large expansion of quantitative management and performance data. The results have undoubtedly improved the bases on which academic planning and management is conducted and added substantially to the work-load of administrative staff.

Analogy with commercial practices led to criticism of the collegial system of governance with its extended discussion in departments, faculty and senate, and focused on the failure of vice-chancellors (V-C's) to provide leadership. A more suitable model was held to be that of the then polytechnics, where heads of departments, deans and the director exercised managerial authority. Following the 1992 Act, universities old and new have responded by taking advice from management consultants; by identifying V-C's as chief executive officers; and by appointing deans and deputy V-C's with executive authority within the collegial structures.

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[11] Dismissal on grounds of incompetence or improper behaviour has always been possible but the procedures necessary to achieve it verged on the impractical.

All V-C's are members of the Committee of Vice-Chancellors and Principals (CVCP). CVCP has no executive authority as it cannot direct or commit its members either to actions or policies; nevertheless, CVCP is now recognised as the source of advice and comment to Government on behalf of the university system. In this regard it fills the gap left by abolition of the UGC. In particular, CVCP has assumed essential roles in co-ordinating responses from universities to Government enquiries and in filling the need for more effective public relations.

[f] Teaching. To the community in general and governments in particular, teaching constitutes the primary role of universities. It is appropriate then that the allocation for teaching can now be identified as the largest component of their annual funds. The amount is calculated by multiplying the number of students by an amount which varies with the mix of subjects: expensive subjects such as medicine and engineering receive more money. The number of students and subject-mix is part of the contract between HEFC and each university; over- or under-enrolment is penalised financially.

It is the intention of HEFC to vary funding between universities according to assessment of teaching excellence. This has yet to be properly implemented. Indeed at present, after allowance is made for subject-mix, there is variation between universities of up to 14% in the levels of funding but these variations are arbitrary and are largely to minimise financial embarrassments in a transitional period.

Teaching excellence in each subject area is assessed by external review. The assessors, usually from other universities, consider six areas: curricular design; teaching, learning and assessment; student progression and achievement; learning resources; student support and guidance; quality assurance. They award points in each area. The results indicate that both old and new (1992) universities score reasonably well for individual disciplines; but as institutions, the old universities obtain significantly higher aggregates. The procedures are much criticised on grounds both of inadequate assessments and of excessive cost, which at departmental level is regarded as totally disproportionate to any consequent benefit. Even so, one clear benefit has been to increase the attention devoted to the function of teaching within universities.

The ability of universities to sustain academic standards is at the centre of much current concern. Reductions in the unit of resource and relative numbers of academic staff are making traditional small group teaching methods difficult to maintain. Universities are reported increasingly to be planning to move to "student-centred resource-based learning" with students receiving instruction at computer terminals rather than attending lectures, seminars and tutorials. Externally, concern is expressed by professional bodies that the levels of attainment of graduates is declining. At the same time it is noted that the average level of degree awarded has increased: there are now fewer 3rd class and more 1st class honours graduates. And there is general concern that the external examiner system no longer guarantees comparability of academic standards across all universities. A major enquiry into academic standards is currently in progress with an intention of identifying standards of competence which ought to be evident in awarding degrees. Leveling down of academic standards, the good being the enemy of the best, is perhaps recognisible as a possible consequence.

The characteristics of courses taught at British universities have remained largely unchanged: intense, specialised and short. The pattern of a 3-year course to honours level (4 years in Scotland) in a specialised discipline is retained. No provision is made for general education, nor is there any requirement for graduates to study a foreign language, or philosophy, or even to demonstrate competence in mathematics: all of these are presumed to have been provided by completion of secondary school. Attempts in the 1950's and '60's to introduce "general foundation" courses or to require study of a "minor" subject academically "distant" from the "major" have now all but vanished. Nevertheless, the aim would be claimed to be study of a subject at sufficient depth to establish critical, objective and analytical habits which are transferable to new areas after graduation.

Even so, there are changes. There are proposals to extend the length of courses on the grounds of greater subject requirements, for example in engineering; and to shorten courses by allowing school students to complete part of the requirements before entering university. Many more courses are now presented in modular form, but course options are being withdrawn as an economy measure. Some universities are reducing costs by "franchising" colleges of further education to teach some of their courses at first and second year levels; and others accredit full degree programmes taught in colleges of higher education.

Ability to complete degree courses in 3 years is dependent on preparation of students in the schools. The final years of secondary school are themselves specialised with students concentrating on perhaps 4 subjects.[12] Entry to university is dependent on the grades obtained in the national system of examinations (A-levels) taken at completion of secondary school. Within a university, each faculty will establish entry requirements in terms of A-level grades, seeking to balance academic requirements with a sufficient enrolment to meet its quota. There are marked differences in the grades required for entry, with the new (1992) universities accepting substantially lower grades than the old universities. Between subject areas there are also wide differences. Growth in the number of school students and their greater success in A-level examinations is not spread uniformly across all subjects. Unpopularity of science and mathematics amongst school students lowers the A-level grades required for entry for these subjects into all but the more popular universities. In turn this provokes further concern about the quality of their subsequent degrees.[13]

[g] **Research.** Within a university research is important. It is the principal means of meeting a responsibility to extend knowledge; and it provides a route to establish status and achieve respect in the academic community. Under the dual-support system, all the old universities were funded to provide research infrastructure for the whole of their academic community. No similar provision existed in the former polytechnics. Under the new funding system, HEFC makes no provision for funding general research infrastructure.

Research is funded through HEFC but selectively on the basis of departmental attainment in the research assessment exercise. For assessment each department is required to submit: up to 4 publications for each member of staff being assessed; details of research students and studentships; the amounts and sources of research funding; and a statement of research plans. In general the results of this exercise are regarded as reasonable within disciplines, though there are doubts expressed about comparability between subject areas. Not surprisingly, the old universities score more strongly in this than the new (1992) universities; moreover, the proportion of their academic staff participating in research for the purposes of assessment (98% - 64%) is markedly higher than that in the new universities (52% - 10%).

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[12] The longer degree courses in Scotland can be linked to their less specialised school curriculum. Students there typically study not less than 6 subjects in their final years at school.

[13] The Council for Engineering in paticular argues that low A-level grades imply poorer quality degrees; others prefer to believe that the quality of work at the university determines the standard of the degree and that poor A-levels may indicate no more than inadequate preparation at school. There is equal concern about teaching standards in the schools.

Some 40% (about 600 million pounds) of the universities research income comes in this way. The research councils provide a further 25% for specific projects, judged competitively by peer assessment. The research councils are expected to be positive and pro-active in identifying areas for research rather than being guided simply by the quality of proposals. An increasingly large proportion of high quality proposals is not able to be funded. Research councils also provide research scholarships for post-graduate students; it is suggested that these scholarships should only be tenable in those departments achieving high scores in the research assessment exercise. The residual 35% of research funding is generated by commissioned or sponsored research.

Participation in research is still regarded as a prime qualification for appointment as a university teacher. Increasingly this is acceptably satisfied by prior experience as a research student or research associate, by external consultancy or by a clear commitment to scholarship.

[h] **Internationalisation.** As part of the normal pattern of scholarship, universities enjoy international linkages involving students, staff and institutions. British universities, through the Association of Commonwealth Universities and other organizations have a lengthy history of international activities. Many have collaborated in planning and development of overseas universities: the University of London in particular has provided guidance and accreditation for numerous universities. More recently there have been notably close links developed amongst European universities through the agency of the European Union (EU).

International research links arise both institutionally and through individual contacts. Many research groups operate through international networks, now greatly facilitated by electronic media. Some disciplines require international collaborations if they are to undertake major research projects: the Particle Physics and Astronomy Research Council is the principal source of funding for two of these disciplines (to the extent of about 200 million pounds, 1995).

British universities have always been well placed to attract overseas students, through their links to Commonwealth universities, their European location, and the attractions of English as an international language. Overseas students studying in Britain number 190,000, about 11% of the total. Numbers have increased since full-cost fees for overseas students were introduced in 1975. This arises partly through new international exchange programmes and partly through university initiatives. University initiative was fired by the regulation that required non-EU overseas students to pay full-cost fees but allowed universities to retain the money. If the marginal cost of an additional student from overseas was significantly smaller than the average full-cost, the difference represented additional disposable income. This has become an important source of university income, so much so that, at times concern has risen about a conflict between academic and financial benefits from and for overseas students.

The Erasmus scheme and its successors have facilitated exchange of students and academic credit amongst universities in the EU and now the USA. Previously, regular exchanges of students studying European languages had formed part of their extended degree programmes; now, supported by EU funding, exchanges cover a far wider range of subjects and much larger numbers of students.

2. Australia

[a] Planning and Legislation. The role of government in directing development of higher education in Australia has been explicit during the period since 1980. Initially this was seen in the amalgamations of some colleges of teacher education imposed in 1982 by financial constraints. Subsequently and more generally it was demonstrated in the decision to abolish the binary system and replace it by the "unified national system" (UNS) of higher education (1988). Together these changes reduced the number of institutions from 75 CAE's and 19 universities to 37 universities. The structural changes sought to satisfy two objectives: economies of scale and educational effectiveness. Membership of UNS required a basic student load of 2000, with 5,000 needed to sustain a broad teaching profile and 8,000 to be the threshold for access to research funding. Despite initial resistance, these criteria proved persuasive both to the institutions and to the State governments which enacted the legislation necessary to effect amalgamation. The average size of institutions rose from 4,300 students in 1981 to 16,000 in 1995, but it has yet to be established that the resultant multi-campus institutions have achieved either economies of scale or educational effectiveness.

Creation of the UNS was linked to the aim of establishing a system which combined a diversity of function with greater responsiveness to needs. This was perceived to require changes within universities: in their attitudes and response to national needs; by removal of impediments to change and innovation; and through improved productivity, allowing high quality graduates to be produced with limited resources. Under UNS, each university is required annually to agree a university "profile" which identifies its role within the system. The profile contains six heads of agreement: (a) a description of the institution's mission and objectives; (b) the numbers of students and the scope of its teaching activities; (c) its research activities and research management plan; (d) measures to achieve national priorities; (e) other significant activities; (f) approved funding level. Previously, any discussion of institutional plans would have occurred with the Tertiary Education Commission, a separate statutory body responsible for advising the minister and administering higher education programmes. Negotiations on the "profile" are conducted directly with the Department of Employment, Education and Training (DEET), established in 1987. DEET has responsibility for administering programmes

> "for the development and maintenance of a strong and diverse higher education system that contributes to Australian social and economic needs for a more highly educated population and skilled labour force";

advice to the minister is provided by a Higher Education Council, established under the auspices of DEET.[14]

By 1991 the aims of reform had been achieved sufficiently for the minister to announce that, in future, structural evolution of the system should be largely on the initiatives of the institutions rather than the government. Nevertheless, there remained official concern about accountability and quality assurance: what is it that universities do and how do we - and they - know that they do it well? Directing attention to "outputs" rather than the conventional "inputs" as a measure of government activity is perhaps convenient at a time when growth in scale and decline in resources were publicly identified concerns. The attitudinal change to measurable performance indicators for higher education does though properly reflect a shift in accord with the greater emphasis on its social and economic role. The adopted procedure differs from that used in Britain. The mechanisms available in an institution for monitoring and improving performance are assessed with regard to the mission, objectives and activities identified in the agreed "profile". Although initially it was intended that the results would be used to adjust the agreed level of institutional funding this has not been implemented. Instead, additional funding (1.5 - 2% operating grant) has been distributed each year according to the estimates of overall institutional quality.[15]

[b] Funding. Total income for higher education in Australia in 1995 was about

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[14] The minister, J.S.Dawkins, was explict about the reasons for abolition of the Commonwealth Tertiary Education Commission (CTEC) . "CTEC had a considerable amount of power and whoever was Chairman of CTEC was essentially the Minister for Higher Education. I thought that if the Government had views about what it wanted to do.....it needed tok have its hands more closely on the action" (Weekend Australian, 12 September, 1992)

[15] After four years, the (new) government is proposing to withdraw the quality assessment process, primarily to save money. The universities, which initially strongly opposed the scheme, now oppose its withdrawal on the grounds that its non-financial results have been beneficial.

$7.5 billion (US$6 billion). Of this, 57% was provided directly by the Commonwealth Government as block grants to the institutions. Individual institutional grants are determined for a rolling triennium through annual negotiations on "profiles". Grants for the first 2 years of a triennium have been regarded as firm but for the final year they are subject to changes in the agreed levels of the university's academic activity and the judgment of DEET on the university's ability to meet national goals and priorities. A recent announcement by Government of a reduction of 5% in its budget for higher education ($1.5 billion over 3 years), suggests that this arrangement is unlikely to survive.

Tuition charges constitute a significant additional component of funding provided through the Government. The Higher Education Contributions Scheme (HECS) was introduced in 1988, requiring all students to pay an annual tuition charge of $1800 (estimated to be about 20% of average costs); subsequently it has risen (1995, $2,500). To minimise concerns of equity, payment can be deferred until after graduation. The debt is then recovered through an income-tax surcharge when the graduate's earnings exceed average earnings. The imputed total of HECS charges is distributed to the universities in proportion to their agreed student loads and constitutes an additional 12% of income. Major changes in the scheme are envisaged for 1997: the threshold for repayment is to be reduced to 3/4 of average earnings; and differential charges are to be introduced, reflecting both the costs of courses and the future earnings potential of graduates.[16]

The remaining income is derived largely from activities extra to those defined in the "profile": research grants (6%), overseas student fees (6%), commissioned research and teaching (5%), investments (4%), donations (1%) and

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16 As part of the package in which the Commonwealth Government assumed responsibility for funding higher education, fees had been abolished in 1974. Despite an election pledge not to reintroduce them, the Hawke government found the argument of "user pays" irresistible:"the current arrangments for the funding of higher education are inequitable because the system is predominantly funded by Australian taxpayers, the vast majority of whom do not directly benefit from higher education". The ingenious title of the scheme was matched by the novelty of arrangements for payment (which have subsequently attracted attention in other countries). As an equity measure, it appears to have worked, but it should be noted that neither the abolition of fees in 1974 nor introduction of 'HECS in 1988 had any apparent effect on the composition of the student population. This may not extend to the changes to be introduced in 1997.

The charges envisaged for 1997 provide for a base level ($3,300) for inexpensive and socially essential subjects (art, humanities social, science, edudation, nursing); a higher charge ($4,700) for more expensive subjects and those with higher earnings potential (mathematics, computing, science, architecture, engineering, economics); and a high charge ($5,500) for expensive subjects leading to the highly paid professions (Medicine, dentistry, veterinary science, law). The increased charges are expected to generate an additional $200 million p. a.

payments from State governments for special provisions (3%). At institutional level, the income obtained in these ways varies substantially.

Funding for higher education has increased from 1980 to 1995 by about 50% (in constant dollars) but this has not kept pace with growth of the system so that over this period the unit of resource has decreased by about 10%. The decrease was even greater (13%) during the period to 1989 when the imputed revenue from the HECS charge became available: since 1989 the unit of resource has actually increased by about 5%. But with enrolments currently increasing by 8% and funding now expected to decrease by 5%, it seems unlikely that that this trend will continue.

[c] **Students.** Over the period 1980-95 student numbers in higher education in Australia have grown by about 60% (Table 5). The major growth occurred in the latter part of the period and has applied equally to enrolments, load, commencements, and completions. Two long-established characteristics of Australian higher education have been the relatively high proportions of part-time and mature students: two-thirds of mature students are part-time; and two-thirds of part-time students are mature. The proportion of part-time students has decreased over the period 1980-95 and now constitutes less than 30%. In contrast, the proportion of mature students remains high: definitions of mature students vary, but the proportion of those over 25 years old is only slightly lower in 1995 at 40% than it was in 1980. The proportion of young women students was already greater than that of young men in 1980; by 1995 the ratio had increased to 4 : 3. The proportion of postgraduate students has increased from 16% (1980-90) to 20% (1995).

A major factor contributing to growth in the system - despite a reduction in 18 year old cohorts since 1992 - has been a policy of encouraging students to complete secondary school studies. School retention rates increased from 35% in 1980 to 80% by 1995. This was accompanied by enhanced aspiration for entry to

Table 5. Number of Students in Higher Education in Australia, 1980-1995

(thousands)

	1980	1985	1990	1995
Total Student Enrolment	325	369	485	604
Full-time students	172	204	299	355
Part-time students	114	120	133	174
External students	39	45	53	75
Student load*	249	279	399	468

* Equivalent full-time student units.

university to the extent that participation rates for 19 year olds rose from 20% in 1980 to 32% in 1993. The numbers of qualified students unable to obtain admission to universities has also risen from an estimate of 9,000 in 1986 to over 50,000 in the 1990's. In consequence, universities were formally requested in "profile" negotiations to increase enrolment of school-leavers at the expense of mature students, possibly to relieve political sensitivity to rising youth unemployment.

As part of its equity programme, government funds assistance grants for students both at university and in the later years of high school. The grants are means-tested and for university students carry exemption from HECS charges. About a quarter of full-time university students receive these grants. Although it is believed they contribute significantly to raising school retention rates, there is no evidence that they have achieved any significant change in the composition of the university student population according to family socio-economic status, despite the large growth in student numbers.

Similarly unaffected by the increase of scale are the destinations and rewards of new graduates. An annual survey of those completing courses is conducted 4 months after the end of the academic year. This shows that about 20% continue to be engaged in full-time postgraduate work or other study, and a further 7-9% are either overseas or unavailable for work in Australia. Of those who are available for work, over 90% are employed, though the proportion in part-time work has increased from 12% in 1980 to 20% in 1995 in parallel with a national trend. Those still looking for work at the time of the survey have varied between 5% (1985) and 9% (1995), figures similar to those for general unemployment but well below those for youth unemployment. The average starting salary for new graduates remained at 95% of the national average, the same level as in 1980, after a dip to 85% in the economic recession around 1991.

[d] **Staff.** The total number of academic staff in the universities was 33,000 in 1995, an increase of 40% since 1980. Of these, almost three-quarters are involved in both teaching and research and a quarter in research only: any distinction between the "teaching only" function of the staff in the former CAE's and the research function of those in the pre-1987 universities has effectively vanished. The proportion of senior appointments has remained fairly constant at 13% of professors and associate professors and 24% for senior lecturers. The proportion of women has increased substantially to 34% in 1995 but their numbers at senior levels remain low: 780 professors and associate professors (13%) and 1900 senior lecturers (24%).

The increase in staff numbers has not kept pace with the increase of students, so that the staff/student ratio has decreased from 1:11 in 1980 to 1:14 in 1995 (and 1:16 in 1996), lower than the ratio (1:12) found in State secondary schools. In accord with the diversity sought by the government, differences persist (1996) between the staff/student ratios for the former CAE's (1:20) and the pre-1989 universities (1:14). The proportion of tenured academic staff has also decreased from over 80% in 1980 and now stands at about 50% despite an increase in median age to 44 years. Almost all senior staff (90%) remain tenured - though the proportion has been reduced from 99% in 1980; only half of those in the lecturer grade now have tenure in comparison with 80% in 1980. These changes arise from a combination of reduced recruitment, a necessity to generate financial savings, a desire to preserve academic flexibility and a perception of decreased attractions in lifetime careers in university employment - though a concern that there would be too few qualified candidates for the needs of the expanding system has not materialised. Dissatisfaction with levels of salaries, on average lower than those of school teachers, is endemic despite substantial increases in 1988 and 1991. Subsequently, national salary scales are being replaced by institutional scales and this is producing significant and differential rises in pay between universities but at the expense of both new and existing appointments.

[e] Management and Administration. As one of its last acts, CTEC published in 1986 a "Review of Effectiveness and Efficiency in Higher Education" As well as identifying fundamental structural problems and inadequate provision for funding, the report expressed concern about a lack of management skills, an absence of forward planning, and the inadequacies of large and unwieldy governing bodies. In the ensuing reforms initiated by government, desirable institutional characteristics became identified with strong managerial modes of operation and a capacity to generate rapid decisions, responsive to external needs.

Structural changes included new State legislation to reduce the size of university councils.[17] Universities themselves established two parallel responses: devolution to Faculties of detailed responsibilities for resource allocation (and the consequent painful decisions); and centralisation of extended strategic planning to prepare submissions for profile negotiations and future developments. Quality assurance emerged as a measure of institutional efficiency - rather than academic effectiveness - emphasising the need to generate a spectrum of input and output performance indicators. Fundamental questions posed in the process of quality assessment include:

- what quality assurance policies and practices does the institution have in place or is developing for assuring the quality of its teaching, learning, research and community service performance;

- how effective and how fully deployed are these;
- what processes does the university have to evaluate and monitor the quality of its outcomes;
- which quality related indicators does the university use, and why;
- what are the university's priorities for improvement;
- what quality initiatives has the university undertaken in the last year and what evidence of improved performance is there?[18]

In this context, the role of vice-chancellor as the university's principal administrative officer is seen to dominate the accompanying role of principal academic officer. Indeed, the designation "chief executive officer" is frequently used: an official statement about "profiles" speaks of negotiations "between the government and the institution's chief executive officer". As yet this has not broken the pattern of appointing as VC's only those who have established academic reputations but all universities now appoint deputy vice-chancellors with particular responsibilities for quality appraisal and performance. With their traditional titles, all VC's are members of the Australian Vice-Chancellors Committee which, like its British counterpart, has now become established as the major source of advice to government on higher education.

[f] Teaching. In Australian universities, teaching conforms to the British pattern of intense, specialised and short courses with no provision for general education. The Scottish variant has generally been adopted, providing a 3-year course to an ordinary bachelors degree and an additional fourth year for honours. This is consistent with the broad base of secondary school studies which requires students to study at least 6 subjects. Longer courses are standard

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[17] In one State the minister emphasised in a parliamentary speech that vice-chancellors and their colleagues were responsible for managing the university and that university councils should not attempt to concern themselves with managerial detail but rather with genaral advice on matters of principle and policy. For many experienced members of councils, this request for restraint and wisdom proved not easy to implement.

[18] A similar but more searching set of indicators was identified by the Williams Committee (Report of the Committee of Enquiry into Education and Training, Canberra, 1979). (1) What are the institutional objectives? (2) Are selection procedures for staff, students and courses consistent with this? (3) How are staff inducted, developed, assessed? (4) What codes of conduct exist to check on teaching and research quality? (5) What are attrition rates for students? Are they reasonable given admission policies? (6) How are teaching, examining, curriculums reviewed? How are examination results reviewed? (7) How are financial and academic plans related? (8) How do costs compare with those of other institutions? (9) How can resourses be redeployed to provide for new activities? (10) What arrangements exist for external reviews? (11) Is there an explicit balance between teaching and reseach, and is it reflected in resource allocation? (12) What special support is given to those with greater research capacity?

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in many of the professional disciplines where graduation carries at least an initial professional qualification: *e. g.* 4 years in engineering and education; 4 or 5 years in law and architecture; and 5 or 6 years in medicine and dentistry. Pressure already exists to extend further the courses in many professional areas either to require extended degrees (*e. g.* 5 years in engineering), "double" degrees (*e. g.* law and commerce), or initial masters degrees (*e. g.* in engineering and business). On grounds of cost, this tendency is resisted by government which prefers to see undergraduate courses concentrating of generic and transferable skills, leaving advanced technical skills to the postgraduate level - when employers might be expected to carry the costs. Moves to emulate American professional education are seen in developments in postgraduate courses in medicine and law as well as in MBA programmes. Concurrently, government also seeks to shorten expensive university courses by encouraging provision for able students to obtain credit for some first year courses while still in secondary school; and to extend and formalise credit transfer arrangements with the (cheaper) Technical and Further Education sector of tertiary education.

Concerns about maintaining academic standards are though expressed by employers as well as universities. Admission to university is on the basis of scores in school-leaving examinations (cut-off scores). It is noted that scores required for enrolment in subjects except medicine and law have fallen over the past 15 years; and that special provision is increasingly needed for introductory classes in mathematics and in study skills. Even so, progression rates were maintained at about 85%, and graduation rates at about 60% (cf Britain, 94%) through the 1980's and current completions suggest that they may have improved in the 1990's.

Desire of government to relate output of graduates more closely to perceived needs of the labour market has led to encouragement of growth in courses in science, technology and management. The policy has had limited success. The proportions of students in these areas has risen since 1980: in business studies from 17% to 21%; in science from 12% to 15%; and in engineering from 7% to 8%. But in terms of numerical popularity, the humanities and social sciences remain the largest sector (1980, 26%; 1995, 23%) though education has decreased from 23% to 12%. In terms of competition, admission to faculties of medicine and law requires the highest cut-off, nursing, education and science the lowest. Only small differences in cut-off scores exist between faculties in the former CAE's and the pre-1987 universities: where they occur, they favour the latter and in particular, the oldest universities.

A survey of student satisfaction (1996) indicates that 60% are satisfied with the teaching, standards, workloads, and assessments they receive; 14% are dissatisfied. Not surprisingly, those who remain as honours and postgraduate students and older (mature) students are most satisfied with their courses.

[g] **Research.** In Australia, university research holds a position of special significance. Necessarily it serves the familiar ends of satisfying academic needs for professional status and the needs of society for economic development, scientific and cultural advancement and for research training.[19] But additionally it constitutes a major component in the structure of national investment in research and development (R and D). Almost uniquely among OECD countries, investment by Australian industry in 1980 accounted for less than a quarter of total expenditure on R and D, with government providing almost three-quarters: 40% of government expenditure, that is 30% of national expenditure, on R and D was undertaken through the universities. The proportions are changing but by 1990, when total expenditure had increased by a half, universities still accounted for 25% of national spending on R and D.[20]

Funding for research is provided to universities by two routes: as a component in the block grant and through competitive awards from the research councils. Following establishment of the UNS, there have been significant changes in the basis of distribution of the funds in the block grant. Previously, in the pre-1987 universities, a proportion of the grant was designated for research and was conventionally distributed on a *per capita* basis to academic staff; in the former CAE's there was no research component. Block grants now contain an element reflecting research training costs for the negotiated numbers of research students in the "profile"; and also a "research quantum" based on institutional success in obtaining competitive research grants: together these research funds amount to about 15% of total government funding for operating grants. A further 6% is provided through the research councils which also provide support for postgraduate research scholarships and fellowships.

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[19] The minister also identified international respectability as a research outcome: "The government recognises a need for a broad basic research capacity. Maintaining such a capacity is the only way of ensuring that, as a nation, we remain a competent and respected member of the international community, able to understand, apply and build on discoveries made elsewhere......Consequently it is necessary to maintain a research competecy in a wide range of fields, as well as a capacity to train new researchers in them". J. S. Dawkins, May, 1989

[20] Some confusion may arise from differing estimates of total government expenditure on research in universities. The Australian Bureau of Statistics includes costs imputed for university staff time as a major component. Before 1987 they used an arbitrary figure of 30% of operating costs; subsequently, with inclusion of the former CAE's, this was reduced to 22.5%. DEET regards this as a substantial overestimate and identifies a "research only" component of operating grant, excluding the element of staff time: this amount to about 18%; or alternatively a "total identified research expense" of 14%, which excludes special funding for the Australian National University. In turn this maybe an underestimate since it excludes government funds provided through other sources, notably National Health and Medical Research Council, Rural Industries Research Funds, and National Energy Research Development Demonstration Council which jointly provide an additional 4%.

In establishing the UNS, government was firmly opposed to increasing what was perceived as a high level of expenditure on research.[21] Any expectations that universities in the UNS would all attain equality in research support have not been realised. The net result has been to leave over 90% of research funds and 80% of research postgraduate students with the pre-1987 universities. This is fully in accord with government policy, which has been to reflect in their "profiles", teaching loads and staff/student ratios consistent with a dual role of teaching and research. Other policies of selectivity and concentration have also been effective. Within universities, policies of selectivity have been implemented through allocations appropriate to research management plans and internal competition for research funds. Creation, first of special research centres and now, with industrial partners, cooperative research centres, has proved attractive both to academics and to any discretionary institutional funding. Provision for research students has also been sustained, numbers having increased 40% more rapidly than total student numbers; though whether this survives plans to reduce support for postgraduate students by a third by 1998 must be doubtful.

[h] **Internationalisation.** From its initial years, Australian higher education has been committed to the concept of internationalisation: in recent years, its implications have changed significantly. Until the 1960's many Australian students studied overseas, particularly at postgraduate level. Britain first and then increasingly America attracted these students. One consequence is that even now about 40% of Australian academics have degrees from overseas universities - 20% from Britain, 13% from America (and a surprising number of public figures are graduates of Oxford (Rhodes scholars) or Harvard). Entitlement to study leave is incorporated in the terms of appointment of all tenured academic staff and is normally used to establish and renew international academic experience.

Expansion of Australian universities - in scale and scope - has dramatically altered the flow of students. In 1995, 46,000 students from overseas countries enrolled in Australian universities (8% of total enrolment), a quarter of them being postgraduate students. The vast majority of these students come from the

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[21] Government funding (ABS numbers) was 0.73% gdp in 1989, close to the OECD average of 0.74%.

Asia-Pacific region: 85% from Asian countries, a further 5% from countries in the Pacific area, and 3% from the Americas.[22] Support for students under overseas aid programmes (notably the Columbo plan) had been provided by the Australian government from the 1960's. In addition, limited numbers of privately supported overseas students were admitted mainly from Asian countries in line with the national policy of widening the base for immigration. By 1983, there were some 3,500 ODA students and 10,000 private students, a number which continued to grow. The growth increased hugely in 1989 following a decision that universities might admit overseas students without quota restrictions provided they paid full-cost fees.[23] For universities both the student numbers and the income were additional to "profile". The additional income from fees currently amounts to about $0.5 billion. Government assertions of Australian success in "exporting" education as a commodity have caused cultural offence in a number of countries and embarrassment for universities.

Attempts are being made to emulate the European Erasmus student exchange programme. The plan for University mobility in Asia-Pacific (UMAP), an Australian initiative for staff and student exchange, has active support from Japan, Korea and Thailand and is endorsed as an educational programme by APEC. As yet, its scale remains small.

Conclusions

The developments that have taken both Australian and British higher education from elite to mass systems are strikingly similar. Undoubtedly much of the similarity does reflect a pattern appropriate to their common origin. But the detailed sequence of changes, notably those accompanying establishment, and abolition of their binary systems invite a suspicion of conspiracy. For once this may have been true, even if only as a consequence of the regular exchanges between Canberra and London. It appears to continue: both countries have established major reviews of the future of higher education - the Dearing Committee in Britain, due to report in 1997, and the West Committee in Australia, due to report in 1998. Comparison of these reports should be instructive.

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[22] Over 60% come from just four countries: Malaysia, (20%), Singapore (19%), Hong Kong (14%), Indonesia (9%). This excludes some 6,000 students from New Zealand who are regarded as statistically and financially Australian.

[23] The sequence of events leading to this is instructive. Privately funded students, in strictly limited numbers were admitted, initially without fees, to occuy spare capacity in universities and colleges. Subsequently, small fees were imposed and universities were allowed to admit students additional to identified capacity provided full fees were charged. This proved sufficiently popular with universities and overseas students to raise concerns that Australian students (who could not be admitted as fee-payers) were being excluded at the expense of foreigners; and that universities were abusing their tax-payer funded facilities. The decision to charge all overseas students full-cost fees (some being subsidised by ODA) was intended to remove these concerns by restricting the number of overseas students. The immediate result was an increase of 40% in unmbers and a growth rate of 4 times that previously. Now it has been announced that from 1997 Australian students, extra to profile numbers, may be admitted as full-fee paying students.

Creation of mass higher education is essentially a political rather than an educational development. One consequence is that the question of government involvement in university planning is no longer one of concept but of extent. The current scale of resources devoted to higher education provides both cause and effect. But in turn it raises the question of balance between planning and needs, that is between regulation and market forces. It is generally accepted that educational provision - at all levels - is not optimised solely by market forces. Even so, the flexibility inherent in countries with binary mixtures of public and private provision emphasises the problems faced by those - such as Australia and Britain - which have only public systems of higher education. Neither Australia not Britain has been willing to allow the market to indicate a level of resources which might economically be devoted to higher education.[24] In effect, they have accepted that access to higher education is an entitlement for those suitably qualified.

It is only for internal distribution of resources within the higher education systems that market forces are seen to be useful. The British concern with identifying disciplinary excellence generates a view of the university as an aggregate of departments engaged in competition for promotion or relegation, assisted by a flourishing transfer market for academic talent. Already a new premier league of elite universities begins to emerge. In Australia, the competition is one of institutional rather than departmental achievement, and the criteria are more clearly administrative rather than academic. To varying extents, four effects are recognisible in the two countries.

1. The collegial character of universities is diminished. Decisions cease to be those of the community of scholars. Students are regarded not as pupils but as

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[24] There are minor exceptions to this. At postgraduate level, post-experience courses (but not MBA) and recurrent education in Britain, and postgraduate courses (including MBA) in Australia charge full-cost fees. Similarly in each country there is one private university, effectively providing courses in law, which has virtue of being comparatively cheap to teach and highly rewarding to the graduates. It does appear that this is about to change in Australia, with introduction of differential tuition charges for undergraduate courses and a proportion of student places being made available on a full-cost basis (see Footnote 15) . A proposal to charge selective institutional supplementary fees in Britain has been rejected by all political parties, despite expressed concerns of diminishing public economic benefit as participation increase.

customers receiving a service from academics who themselves are skilled employees.

2. Management is established as an authoritative responsibility. Administration is now more effective in terms of accountability, though not demonstrably so in academic planning.
3. Teaching and research are separable. What remains obscure is to what extent this is sustainable or even effective. At present, universities devoted to teaching may be virtuous but only those with research can aspire to greatness.
4. Universities have rapidly learned to adapt to external financial inducements. One lesson is that reliance on performance indicators does not create diversity.

Perversely, the most curious outcome is that in both countries unitary systems have been established. The demands of mass higher education with continuing needs for the products of elite institutions appear to be far better reconciled through a plurality of systems. This is not to say that the binary systems as they had developed by the 1980's could be sustained. A structure combining division (as in public - private sectors) with provision for extending access does appear capable of reconciling available resources to both entitlement and the market. In fact, of course, in both countries binary systems still exist; and with separation of teaching and research functions do begin to meet these requirements. To sustain the division it would be appropriate to see extended privatisation at the postgraduate level; and increased credit-transfer at the interface with technical and further education. In Australia it appears probable that increased privatisation at undergraduate level may even re-establish some institutional autonomy; in Britain, given a desire to increase central regulation, it may require contrary advice from the Dearing Committee to achieve a similar result.

Sources. Statistical data are taken from publications of CVCP and the Higher Education Statistics Agency in Britain; and of AVCC, DEET and the Graduate Careers Council in Australia. My thanks are due to staff in all these organisations for their help.

Cross-National Study on Academic Organizational Reforms in Post-Massification Stage*

Akira Arimoto
Hiroshima University

We need to clarify in this tentative proposal the basic viewpoint regarding the international project on higher education we are undertaking with cooperation of six countries: China, Germany, Japan, Singapore, Switzerland and the U.S.A. The relation between education and economic growth has become a kind of shared theme to discuss by attendants of both developing and advanced countries, because it has become an increasingly important issue in the field of higher education. Universities and colleges constitute the central part of higher education today; their growth and societal growth are determined by mutual interaction. Society cannot develop at all without a sufficiency of academic institutions and vice versa.

For the development of academic institutions, therefore, how to construct an organization coping with social change is an inevitable question; and on the other side,it is manifest that success or failure of academic organizational reform will have a strong effect upon each country in its cultural, social, and economic development.

In this sense, we need to focuss attention in this study on higher education on the theoretical and positive understanding of academic reforms in response to social change among the six countries, observing comparatively the real situations, problems, and subjects in each country.

I. Background of Study

1. A mutual relationship between higher education and economic growth is well testified in the fact that the social function of academic institutions usually

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*This paper is based on the tentative proposal paper on Higher Education entitled Cross-National Study on Academic Organizational Reforms in Post-Massification Stage which was delivered to *The Second Six-Nation Conference: Global Education for the 21st Century*, Washington and Philadelphia, May 30-June 3 1995.

has correspondence with economic growth (Hufner,1993) . Educational institutions have a mutual relation with social institutions and therewith a deep relation to economic institutions. Higher education is defined by economics as well as economics by higher education. For exampl, the economic institutions expect the higher education to train manpower which has the profound knowledge and ability to contribute to economic growth, but equallyhigher education demands that the economy provides return of income and affluence to accommodate such trained manpower. Likewise, developments of knowledge, information, and technologythrough research made by academic researchers on campuses may contribute to economc growth. Service activity provided by academic faculty also brings about, directly or indirectly, a great deal of knowledge, information, and technology leading to economic development.

2. Recent social change has brought with it much change in universities and colleges through a variety of effects which include information-orientation, internationalization, retrenchment, student population decrease, etc. In particular, these effects emphasize theconnection between economic change and academic change. Historically speaking, social economic growth naturally brought about academic growth, successfully leading to development from education for an elite group to education for the masses. The recent rise of economic retrenchment, however, is gradually resulting in academic budget contraction, so leading to rationalization of academic administration and management. According to Martin Trow's model (Trow, 1974) , a stage of universal higher education is anticipated to be established after massification, but this ideal final stage seems to be hardly realized by the effect of emerging low economic development. We need to define the presenthesitating phenomenon, which is potentially hesitating and groping for a universal stage, as a post-massification stage deriving from the massification stage (Cf. Ehara, 1994) .

In Japan, for example, this trend is proceeding profoundly in the 1990s, though it already became evident around the second half of the 1970s. At this stage the relation between society and academe is apt to become critical to the extent that academic reform is proclaimed as a perspective of social accountability and relevance of academe. So the post-massification stage remains at the level of groping for a universal stage under the difficult conditions caused by social and economic depression. Higher education in the 1990s is increasingly facing a time of trouble, as Clark Kerr discussed (Kerr, 1994) , involving a unique combination of (1) intense interaction of higher education with society, (2) dominant initiative of society, (3) limited overall agreement on goals and methods, and (4) potentially prolonged and rising conflict —— a "time of troubles." We cannot deny basically that similar kind of phenomenon is also recognized in Japan. Under these circumstances, the academic growth model dominant at the massification stage should be reconsidered in response to an emerging retrenchment.

As is expected, the social expectations of academe have gradually expanded within modern society: universities and colleges are located in the midst of an information-oriented society with knowledge production and dissemination as their central function. On the other hand, universities and colleges will loose their raison d'etre unless they can respond adequately to social expectations, since they are increasingly dependent on financial support and cooperation from society. Depression of academic budgets caused by societal low economic growth, compels universities and colleges to reconstruct their structures and functions to cope with the new situation. The outcome of such reconstruction and reform is expected to have some effects upon social economic growth andvitality in all countries facing the same kind of context, and hence the problem of academic organizational reform becomes a shared theme to discuss among the six member countries in this international project.

3. In every country facing the kind of social change which includes more or less economic retrenchment, some modification and shifting of academic policy may be observed. Each country must construct a concrete academic policy from a new viewpoint, in so far as the development of a country substantially depends on academic organization through its development of functions as teaching, research, and social service. Of course, some differences are recognizable in the real situations of higher education between those countries still standing at the stage of achieving massification as seen in China and Singapore and those countries which have reached the post-massification stage. Considering the different situations distinguishable among countries and paying much attention to such countries, we can especially observe in U.S.A. and Japan that innovativeefforts are proceeding with new emphasis and direction beyond the massification stage.

In Japan, reflecting on the factors of economic rationalization and the decrease of numbers of the traditional eighteen-year old students, the national government has resumed the review of academic policy since 1991 when MOE (Ministry of Education, Science and Culture) introduced new guidelines for establishment of higher education institutions by 1993 Ordinance No. 28 of the MOE (Cf. Kotokyoiku Kenkyukai, 1992) . Some traits can be recognized in this policy: deregulation of the procedures for establishment of academic institutions and their management; stress on qualitative development; reinforcement of self-reform; consideration of liberalization, individualization, and rationalization; introduction of marketplace principles and hence competition among institutions; encouragement of academic evaluation. It is manifestly and latently stressed in recent statements of academic policy that every institution is increasingly expected to think about survival under the changing circumstances.

4. Academic organizational reform is made necessary by environmental factors inside and outside the academic institution (Arimoto, 1994) . As pointed out above, the external factors consist of social change as well as government academic policy. In fact,by ignoring social and governmental demands and failing to pursue accountability, a modernacademic institution is unlikely to survive. Focussing on internal factors, on the other hand, there have accumulated so many conflicts within campuses that attempts to solve them cannot be postponed anymore. In Japan, the period of campus dispute lasted for several years in the 1960s; and in the massification stage, students protested the discrepancy between quantitative and qualitive development of higher education. Insufficient reforms were instituted then on almost all campuses, though academic organization was faced with reform of its structure and function so as to achieve the massification of higher education replacing provision for an elite.

The sort of cultural lag that occured is clearly demonstrated by the fact that self-study apparatus within universities and colleges in Japan was established in 1972 only at the Research Institute for Higher Education, Hiroshima University. This exceptional case lasted for approximately twenty years until the establishment of similar apparatus atTsukuba (1986) , and recently at the following institutions: Kobe (1993) , Tokyo (1993) , Tohoku (1993) , Niigata (1994) , Kyushu (1994) , Kyoto (1994) , Hokkaido (1995) , etc.

Another case is also demonstrated by the fact that reform of general education has scarcely taken place even today. In the 1960s, corresponding with enlargement and diversification of the students, the necessity was recognized for diffusing general education across the whole campus instead only in one course or Faculty of general education. No remarkable reforms, however, were made then except in Tsukuba University and Hiroshima University, especially at the level of national university sector. In addition to this, the reform of curriculum, teaching method, and teaching facilities, stayed under-developed with maintenance of a traditional lecture style and method, more suited to the elite stage of higher education where innovation of curriculum and teaching methodology to cope with student diversification could be largely ignored. Still more important to say, the structure of academic organization started after the War has remained even today without great reformation, though it was started on the basis of the academic disciplines needed then.

Of course, during the half century until today, the content of academic disciplines has had to change to reflect progress; and due to the progress of disciplinary change, new arrangements of the traditional organization of chairs, departments, and faculties have been created. But this kind of climate does not lead to solution of internal conflictwithin an academic organization. Universities and colleges throughout the world standing on the massification stage of higher education are more or less faced with similar situations where there exists an accumulation of structural conflict and lag to be solved sooner or later.

There are two ways of approaching solutions to these subjects: government-led reform, intrinsically having a bureaucratic and unified direction; or individual institutional reformwith an individualized and diversified direction. Each country has its own characteristicsregarding the trait of reform in this respect. In Japan, for example, the national government is stressing that an individual institution's own initiative should work effectively to overcome the gradual decrease of the traditional student population by approximately 800,000 during the coming twenty years. Introduction of deregulation policy by the government, as in the 1991 ordinance indicated above, means that development of academic organization is not possible during the retrenchment period without stimulating competition among institutions to conduct organizational reform independently and voluntarily by introduction of the principle of marketplace orientation and of liberalization.

II. Purpose of Study

1. Purpose of the Project

The purpose of this project is to identify academic organizational reform at the massification stage by a cross-national perspective. Therefore, considering the transformation of the relation between social change and academic institution as described above, we should like to identify the real situation of each country at the massification and especially post-massification stage. The justification can be summarized along the following lines.

(1) Demand for rationalization and accountability is derived from both society and academic institutions.

(2) In universities and colleges, stress is placed on the performance of social

contributions by conducting research, teaching, and service activity on the basis of the logic of academic disciplines and hence pursuing academic autonomy and freedom.

(3) Pressure caused by the conflict and reinforcement between the perspective of social demand as indicated at (1) and the perspective of institutional demand as indicated at (2) has to be reflected in real reforms.

(4) Transformation from the old to new organization exists in the reflection of these three factors (1) (2) and (3).

Considering these factors, we need to clarify how academic policy useful for the 21st century can be formed by observing the process of academic organizational reform in each country; and also clarify the mutual interaction of academic reform and societal development by analyzing the processes intrinsic to each country from an international comparative perspective.

2. Elements of Academic Organizational Reform

Basic elements constituting academic organization and their intrinsic nature should be focussed through observation of the transformation processes of academic systems and organization. This study emphasizes that academic work such as learning, teaching, research, and service, basically consist of knowledge, or application of knowledge as material and mediation. In other words, we need to pay attention to the nature of knowledge, to scientific knowledge, and to academic disciplines and hence to the followingelements.

(1) The function of knowledge is mainly divided into four parts: discovery and invention,dissemination, application, and control, as indicated by Table 1. Accordingly, analysis ofreforms acquired in the four phases—research, teaching, service, and administration and management organization—is indispensable.

Table 1. Function of Knowledge and Academic Organization

function of knowledge		academic organization
discovery of knowledge	=research	research organization
dissemination of knowledge	=teaching	teaching organization/ curriculum arrangement
application of knowledge	=service	service organization
control of knowledge	=administration	administration and managerial organization

(2) The realm of knowledge is mainly divided into two parts: sequence and scope. This division implies a need to set up organizational reform as the object of analysis from theperspective of both knowledge differentiation and integration. The vertical differentiation, caused mostly by sequence, leads to the problems of organization at the level of undergraduate and graduate tiers; on the other hand the horizontal differentiation, caused mostly by scope, leads to organization at the level of chair, department, and faculty. Reform of undergraduate and graduate organization, the relationbetween structual and functional differentiation and the integration of these two tiers then becomes the objects of international comparison (Clark, 1983) .

Reform of chair, department, and faculty organization, and the relationship between the differentiation and integration of these organizational structures also become the objects of the comparative study. At the same time, the differentiation and integration ofteaching and research organization also become the objects of analysis.

(3) At the realm of control of knowledge, the object of analysis is directed to the administrative and managerial organization, in which two types of structure are distinguishable: a centralized structure, controlling knowledge from the top side of the administration; and a decentralized structure, controlling knowledge from the bottom.

The former type is embodied in a trustee committee with a strong trustee and president,while the latter embodies strong autonomy and freedom derived from the faculty meeting (Clark, 1983) . In Japan, the private institutions belong to the former type and the national and public institutions to the latter type—though it is said that the national sector is gradually approaching the private sector in the style of control.

We intend to make a comparative analysis of each country with focus on these kinds of administrative and management modes.

III. Framework for Comparative Study

1. Effect of Social Change on Academic Institutions

(1) The real state of social change may vary with each country but even so, common socialchange is to be recognized in the following factors: information-orientation; internationalization; lifelong-learning-orientation; academic budget shrinkage; decrease and transformation of the traditional student population.

Characteristics proper to each country need to be identified by observation of these factors.

In Japan, for example, on the one hand the social weight of universities and colleges has been increased by environmentally changing demand for them; on the other hand, economic retrenchment has increased so much at both national and local level to the extentthat academic system growth cannot be expected anymore on the basis of a traditional massification model.

We need to share a common understanding in this project of how academic organizations encounter the massification and especially post-massification stages. It is necessary for us to make clear the real state of academic organizational reform through observation of the situation of social change in each country and also the problems and subjects which confront academic organizations at the prescribed state from massification to post-massification.

(2) Transformation of Academic Policy and its Characteristics

Demands for academic reform from massification to post-massification stage have been made by national and local governments at policy making level. In Japan, it is most remarkable that the national government transformation introduced into higher eduducation policy a general relaxation and deregulation of academic organizations. The following characteristics can be noted (Cf. Arimoto and Weert, 1994) .

In the first place, there is to be a review of the economic effects of the academic function. Under the national budget retrenchment, the management and social function ofuniversities and colleges is to be reviewed in terms of economic rationalization and accountability. In effect, a serious examination of academic organization (especially its structure and function) has been introduced through various kind of academic assessment from the need for reform on the basis of economic rationalization, efficiency, effectiveness, and accountability.

Second, privatization, or provision for greater expansion of the private sector rather than the public sector is increasingly stressed. In this regard, the privatesector is already dominant in Japan, but recently it has been argued that institutions in the public sector should be privatized.

Third, deregulation of the establishment and management of institutions is encouraged. A typical example of this policy is recognized in the evidence that every institution can now manage its curriculum with regard to the combination between general and special education content as far as is consistent with the maintenance of a framework of 124 credit points as a graduation qualification for students. Generally speaking, it is said that this policy transformation arises to a considerable extent from the way in which control was delegated by governmental to become an institutional initiative in deciding curriculum content. In accordance with this policy, rearrangement of the relationship between general and special education is being undertaken to the extent that every institution has started to reconstruct or abolish its Faculty of General Education.

Fourth, a marketplace principle is introduced in the sense that survival of an institution is decided on the basis of its achievement in relation to research, teaching, and social service activity. This is especially true for national institutions and there with the logic of paternalism or sponsorship of the national government is being reviewed to encourage self-help management of individual institutions. As a result, the budget allocation method is changing from a balanced allocation to a graded one. As a whole, the policy has shifted towards the possibility of natural selection among institutions in accord with a market-direced principle.

Fifth, academic self-study and evaluation was required of every institution in return for introducing deregulation in oder to maintain high qualitative standards sufficient for the highereducation system. This means a fresh start for the accreditation system which has been in a state of collapse for many years despite its introducton into Japanese higher education system immediately after the War (Arimoto, 1993).

Sixth, accountability is stressed under the circumstances that society - including government, sponsors, consumers - has something to say about the purpose of university and college. Hence the academic reform is going to be driven by the initiative of society rather than university and college themselves. This logic is easily understandable as observed from the side of society but from the campus this appears to be nothing but a threat to academics who are the specialists well vested in relevant knowledge. Indeed, this contains a component to be considered as a threat not only to the existence itself of academic autonomy and freedom but also to the substantial content of academic organization including curriculum, program, teaching, and research. Much attention should be paid to its development.

Observing these characteristics of transformation in academic policy, it is not an over-simplification to perceive that academic reform was eventually started in higher educational institutions throughout the country as a result of governmental pressures. In fact, special committees have been formed in order to consider campus reform by self-study and evaluation and to examine the content of reform itself. In Japanese universities and colleges where self-evaluation systems were not well developed, it is a sign of new reform and this trend must be considered as an important one. This kind of trend, therefore, should be examined comparatively in the six countries.

Seventh, as a supplementary remark, we can note that psychological stress of academics has increased in the course of academic reform. Academic people confronted with much pressure for reform may be gradually revealing psychological burn-out phenomena or something like it as a result of their undertaking rapid and intensive reforms.

The Carnegie International Survey of the Academic Profession showed some indications of this as far as Japanese academic profession is concerned (Boyer, Altbach and Whitelaw, 1994: Arimoto, 1995b) .

2. Change of Academic Social Function

We need to make a comparative study on the transformation from massification towardthe post-massification stage in the relevant countries with a focus on academic social function. Topics to be discussed in this area are as follows.

(1) Relation between General Education and Special Education

Conversion of higher education from quantitative to qualitative development is necessarily proceeding due to the effects of massification. One immediate consequence, of how to deal with the relation between general and special education has become an important issue (Boyer, 1990) . In Japanese unverisities and colleges, for example, the weight of special education has been elevated to the extent that quite a few people have pointed out that weakening of general education is becoming manifest.

(2) Relationship between Teaching and Research

In general, the research paradigm dominates the modern academic institutions since the German research model was institutionalized into universities; research is apt to be much more stressed than teaching and service among faculty members (Clark, 1995) .

In Japan, the weight of academic policy is gradually shifting, at least regarding the formation of faculty organization, from undergraduate to graduate level. Signs can be detected of role differentiation between a teaching orientation mostly seen at undergraduate level and a research orientation mostly at graduate level. Therefore, the creation of role conflict caused by these role differentiations and integration between them are becoming inevitable problems to be solved.

We need to make a comparative analysis of the relationship of role differentiation betweenundergraduate and graduate levels and accordingly that linking teaching and education. In addition to this, considering that service is reportedly said to be ignored more than research and teaching, the attitude to service has to be questioned against the background that academic institutions are increasingly expected to provide society with various functions.

(3) Response to Internationalization and a Lifelong Learning Oriented Society

Responding to internationalization, a target of doubling the enrollment of international students, from the present 40,000 to 100,000 in numbers, in universities and colleges in Japan has been established. At the same time, academic functions are expected to provide more to society; and the service function is to be questioned at this turning point, as it is increasingly asked to improve academic organization toward a lifelong learning system including expanding opportunity for adult learners (Arimoto, 1995a) . In addition, it is often suggested that the service function is likely to be ignored among academics if it is compared with teaching and research (Boyer, Altbach and Whitelaw, 1994) . These problems, typically observed in Japan, also need comparative analysis.

3. Structural Reform of Academic Organization

It now becomes useful to analyze comparatively the structural reform of academic organization in terms of norms, undergraduate organization, graduate organization, and administration organization.

(1) Normative Structure

This means the aspects of ideals, culture, the value of academic organizations, andidentifying the purposes of university and college education. Every institution is expected to clarify its own ideals and purposes in order to demonstrate its own distinguishable individuality. As Clark Kerr discussed recently, the missions of higher education have been sifted to a considerable degree: "the long-run trends have been (1) from the university to diversified universities of higher education, (2) from one to a few, to many assignments, and (3) from service to a few, to many, to most people." (Kerr, 1994b, p.177) . We need to identify comparatively the changes in ideals, missions, and purposes of academic institutions in each country facing with a turning point.

(2) Separation of the Graduate from the Undergraduate Organization

It is said that separation of the two tiers seems to be indispensable to meet with the nature of knowledge. German universities, which had maintained a nineteenth century institutional structure until recently, were compelled to introduce graduate courses in 1990s, as discussed by Burton Clark (Cf. Clark, 1995) . This is not exceptional. Recent reforms in Japan have moved substantially in this direction, introducing a two-tier-system. Concretely, academic policy for reinforcing the graduate school is taking place by establishment of so-called independent graduate schools: these may take the form of an independent graduate faculty as well as independent graduate courses, and allow faculty belonging to the undergraduate tier move up to the graduate tier. This trend means a transformation toward conforming to an American mode which was, in the history of higher education, innovatively institutionalized at the end of the nineteenth centry in order to modernize the relationship in some universites between teaching and research structures.

(3) Chair System and Department System

There are several layers of academic organization: bottom, middle, and upper level. At the bottom level, the operating unit consists of sections such as chair, departmen, and institute. The organization at this level is changing at the national univeristies in Japan where the chair system institutionalized since the former Teikokudaigaku (Impeial Univerisity) was established. The arrangement of the department as well as faculty formation is also changing in Japan. Trends of this kind show that the chair system cannot cope with the development of science under the explosion of knowledge and differentiation of academic disciplines. As a result, interdisciplinarization and integration so as to meet with emerging new academic disciplines are accommodated by rearrangemnt of departments and faculty. To coordinate teaching, a major chair is inevitably introduced to overcome the difficulties of making interdisciplinarization and integration of the curriculum which is caused by the teritorial chair system of research involvement. Associated with this trend, it is manifest that newly named departments and faculties have increased at the expense of abolishing and integrating their precursors.

Despite these trends, however, it is said that the traditional academic organization inJapan has a faculty directed arrangement which strongly identifies a logic of research orientation and not that of teaching. Even in the so-called comprehensive universities, many faculties exist but these are essentially professional schools involved in professional and special education, and hence they are not necessarily adequate to provide common general and liberal education for the massified students from the perspective of the comprehensive university (Arimoto, 1995b).

Today, it is evident that general education is increasingly needed at the undergraduatelevel and hence reform of the organization is inevitable if this situation is to be overcome. The question is how to reform a structure suitable to special education in the realm of a given discipline to that suitable for general education as a common provision for massified and diversified students. To integrate the various disciplines, it is necessary for both research and teaching to meet the needs of a comprehensive university. Fromthis perspective, we need to have a comparative study of the situations in the relevant countries.

(4) Reform of Administrative Organization

Rationalization of administrative organization shows how the organizational logic of industrial society has invaded academic institutions, and it is being reinforced in accord with increased economic retrenchment around academic institutions. Reform is expected to promote integration and cohesion of the whole campus especially at the post-massification stage where an inclination to seek organizational efficiency, effectiveness, and accountability becomes predominant. Comparison is to be made in this regard in relevant countries.

It is supposed that the characteristics of the organization of administration is gradually moving from decentralization to centralization of admnisitrative power. In Japan, faculty autonomy was powerful: the president and deans who are usually elected by the vote of faculty had little power. Recently, however, under the rising rigid economic environment and its effect upon academic management, the expectation for rationalization of administration and management has been to elevate organizational integration and cohesion. For example, it is typically observed that the power of the president has been reinforced by introduction of the posts of vice-president and of presidential adviser. This trend affects the traditional autonomy of the academic guild.

(5) Structure and Allocation of Academic Budget

It is important to clarify the trend of reform by focussing on this issue. The degree of economic rigidity over the retrenchment period has had various effects among the countries participating in this international project. In Japan, national universities are fundedby the national budget, while private institutions are funded by student fees and other income though they have some support from the government. In the case of the national universities, severity of the national budget constraints directly affects decision-making for the academic budget; while, in the private sector, a decline of student enrollment hasthe same function. At the present time, both sectors are exposed to the same kind of negative effects. Such effects of the economic situation on acadecmic society need to becomparatively analyzed.

Moreover, such reductions in the academic budget must have direct or indirect effects upon academic functions. Worsening academic income forces an academic organization to reform its function, and especially affects its ability to maintain the substance and extent of its purposes,beliefs, and functions (Zusman, 1994) . Which function is to be maintained, reduced or abolished? What factors affect the academic functions of autonomy and freedom? Loss of essential functions probably brings about the stagnation of social function, resulting in degeneration. International comparison is needed to clarify these factors.

4. Academic Vitality and Productivity

The concept of academic productivity is used here to provide an index of academic vitality: academic institutions aiming at production and dissemination of knowledge contribute to social development including economic growth through this activity.

(1) Academic Productivity

Mainly two types of academic productivity are distinguishable: research productivity with weight on the side of research; and teaching productivity on teaching. We need to clarifythese two types by observing various factors related to them.

(2) Conditions of Academic Productivity

Using an index of academic productivity, we can clarify the social stratification of institutions and countries identifying those institutions standing at the center of learning and those at periphery, as J. Ben-David pointed out (Ben-David, 1977; Arimoto ed., 1994) . The social conditions of defining such academic productivity and social stratification include such factors as politics, economics, social system, academic policy,academic budget, institutionalization of science into the university, acadecmic climate, academic administration and management organization, etc. In the twentieth century, for example, it is often said that the center of learning exists in the United States and it is supported by much evidence. What is the status of this evidence? Why are other countries put at the periphery? What is the state of shift of the center of excellence in each country and what conditions define such a shift? By paying attention to such observations, we can analyze the trend of academic organizational reform in the relevant countries, and through this examination we can clarify the relationship between academic and societal vitality.

5. Inputs and Outputs of Academic Institutions

Academic reform has much connection with the decline of the student population and the placement of graduates into the job market. In Japan at the stage of massification, the reason why academic reform was not considered seriously was largely due to the continuing gradual increase of student enrollment and also to the favorable and satisfactory placement of graduates. But both aspects are now confronted with a turning point. A decline in numbers of traditional students and increased difficulty of placement force reforms at both input and output levels of institutions. Even the throughput level — or the educational process from input to output— which has been mostly ignored thus far, should receive attention under such an environmental change.

(1) Change of Student Population

We need to clarify the statistical data of the eighteen year-old population and analyze the relationship between changes in the number of enrolled students and access to higher education. In higher education systems throughout the relevant countries and the different types of institutions, various patterns of access can be recognized from rigid requirements to open door access. Accordingly, the concept of ability and achievement of students eligible for higher education may be said to be diversified through these countries and their institutions. The doors of university and college are not necessarily opened for applicants especially at the stage where academic programs are being reviewed, some even to the extent of curtailment and closing. In this sense, the appropriate scale of access opportunity needs to be studied comparatively among the six countries.

(2) Reform of Entrance Examination

The entrance examination is a subject of importance in considering the input level of the educational process. In Japan, a transformation was made from a system where each individual institution conducted its own examination to a nationally unified system where the national center for entrance examinations conducts a unified examination. This reformof input, however, was not necessarily linked to a throughput reform within university orcollege.

The present organizational reform should be intrinsically related to the entrance examination, as it is the reform of the internal structure and function of the academicorganization. Which students to select, and how to teach them must be a principal subjectof the educational process. Entrance examination, teaching, and graduation are located in the heart of the educational process. In Japan, it is said that despite much attention being paied to entrance examination reform thus far, little attention has been given to clarify the ideals of undergraduate education, or to find students corresponding to such ideals (Cf. Hiroshima Daigaku, 1995) . This suggests that reform of the organization of teaching alone is not sufficient to achieve the objectives of the international comparison.

At the same time, it is also indispensable to observe the relation of organizational change to the changing trend of employment. As is seen recently in Japan, where the "iceberg age" is named after the current tight employment market for university graduates, the employment rate is going down and fewer job chances are available for graduates, as an effect of economic stagnation. Hence, career education, ignored thus far, has to be thought about seriously within the campus.

6. Reform of Curriculum and Teaching in the Class Room

Related to item 5 above, reform connected with class teaching is set as a subject of analysis, since if we deal with reform of educational process as an important theme, the throughput of students is located at the center of education. Elements to be analyzed there include: curriculum, faculty, student, environment of teaching, etc.

We plan to make a comparative study on some particular aspects of these subjects: structural change of curriculum; specialization and integration of discipline; real state of teaching reform.

7. Academic Profession and Students

Academic staff, non-academic staff, and students are important factors to be analyzed in this study and we intend to make comparison of these categories in each counry as widely as we possibly can. The following items will be used in such analyses: (1) change of population of academic staff, non-academic staff, and students, (2) culture of academic staff, non-academic staff, and students, (3) conciousness and behavior of acadmic staff, non-academic staff, and students. For the study on the academic profession, the recent Carnegie survey, which the author of this paper is one of collaborators, could provide reference materials for consideration: major themes included there were: the profile of the professoriate; access to higher education; professional activities; working conditions of faculty; governance in the academy; higher education and society; and international dimensions of academic life (Boyer, Altbach, and Whitelaw, 1994: Arimoto, ed. 1993).

IV. Methodology of International Comparison

To make an international comparison on the subjects indicated above, researchers undertaking this project will need to use indexes adaptable to every country. Indexes to be shared in this project are as follows.

1. Indexes for Comparison of Academic Organization Reform in Every Country

(1) Six countries

a. type of post-massification stage (Germany, Japan, Switzerland, U.S.A.)

b. type of massification stage (China, Singapore)

(2) Sectors
  a. national institutions
  b. public institutions
  c. private institutions
(3) Institutional typology
  a. research university
  b. masters-granting institution
  c. four year institution
  d. two year institution
(4) Geographic zone
  a. urban zone
  b. rural zone
(5) Discipline
  a. humanities
  b. social sciences
  c. natural sciences
  d. engineering

Cross-national analysis is expected to be made by combination of the framework and indexes discussed above.

INDEXES FRAMEWORK	NATIONS	SECTORS	TYPOLOGY	ZONES	DISCI-PLINE	OTHER INDEX
social change						
social function						
structural reform						
input/output						
curriculum/class						
faculty						
student						
non acamic staff						

2. Annual Research Plan

A tentative design of the annual research steps and plan to proceed this project is as follows.

(1) International Comparison
  a. gathering the relevant basic statistics and materials for each country and exchange of information about such statistics and materials.
  b. conducting and analyzing a common survey including, for example, a survey

by questionnaire and/or by interview.

c. comparison of academic organizational reform in the six countries on the basis of the information and data gathered as well as the result of questionnaire and/or interview survey.

d. application of the research results gained in this project to the academic policy and academic organizational reform in each country.

(2) Annual Plan

Taking these steps into consideration, the following annual plan is conceivable.

a. 1st year (1995-96)
  - theoretical study: examination of research framework.
  - gathering data: basic information and data concerning academic organizational reform in each of the relevant countries.

b. 2nd year (1996-97)
  - exchange of information and data among participating researchers on the basis of the reports from each country, and holding a seminar meeting for that purpose.
  - investigation into the present reform situation in each country by conducting a common quesionnaire survey and, if possible, several relevant interviews relating to such investigation.
  - analysis and adjustment of the results of the surveys and interviews.

d. 3rd year (1997-98)
  - holding a seminar meeting for exchanging and analyzing information and data of the relevant countries by bringing them together.
  - synthetis of the information and data from the standpoint of international comparison of academic organizational reform.
  - publication of the final report.

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APPENDIX

PROGRAM AND LIST OF PARTICIPANTS

PROGRAMME

Six-Nation Higher Education Project Seminar

◇◇◇ *Main Theme* ◇◇◇

Academic Reforms in the World:
Situation and Perspective in the Massification Stage of Higher Education

2/4(Tue)	**Arrival of participants in Hiroshima**		
2/5(Wed)	**Pre-Seminar Activity**		
Morning	10:00	5-hour programme starting at Hotel Century 21 Hiroshima	
		Visit to Hiroshima University Campus and The Research Institute for Higher Education (Higashi-Hiroshima City)	
Afternoon		Lunch Break	
		Visit to Takamigaoka Elementary School	
2/6(Thu)			
Morning	8:15- 8:50		**Registration**
	9:00-10:00		**Business Meeting** (Directors of Six-Nation Project)
	10:00-11:30		**Welcome Session** Introduction & Opening Remarks
			Chair: Keith J. Morgan Visiting Prof., Research Institute for Higher Education, Hiroshima University, Japan

		Opening Address:
		Akira Arimoto Dir., Research Institute for Higher Education, Hiroshima University, Japan
		Yasuo Harada President, Hiroshima University, Japan
		Masayuki Inoue Dir.,International Affairs Division, Ministry of Education,Science and Culture, Japan
	10:45-11:30	**Keynote Address**:
		Robert Zemsky Dir., Institute for Research on Higher Education, University of Pennsylvania U.S.A.
	11:30-13:00	**Lunch Break**
Afternoon	13:00-18:30	**Country Report (Session I)**
		Chair: Motohisa Kaneko Dir., Center for Research and Development of Higher Education, University of Tokyo, Japan
		Saravanan Gopinathan Dean, School of Education, National Institute of Education, Singapore
	13:00-13:50	**Japan-Presenter** :
		Akira Arimoto Dir., Research Institute for Higher Education, Hiroshima University

	13:50-14:40	**U.S.A.-Presenter**: Patricia J. Gumport Deputy Dir., Institute for Higher Education, Stanford University
	14:40-15:30	**Discussion**
	15:30-16:00	**Coffee/Tea Break**
	16:00-16:50	**Chair**: Yoshihito Yasuhara Associate Prof., Faculty of Education, Hiroshima University, Japan Wei Xin Deputy Dir., Institute of Higher Education, Beijing University, China **Switzerland-Presenter**: Christoph Metzger Prof., Institute of Teaching, Economics and Business Administration, University of St. Gallen
	16:50-17:40	**Singapore-Presenter**: Saravanan Gopinathan Dean, School of Education, National Institute of Education
	17:40-18:30	**Discussion**
Evening	19:00-20:30	**Reception** (Hotel Century 21 Hiroshima)
2/7(Fri)		
Morning	9:30-12:00	**Country Report (Session II)** **Chair**: Yutaka Otsuka Prof. Research Institute for Higher Education, Hiroshima University, Japan

		Patricia J. Gumport Deputy Dir.,Institute for Higher Education Research, Stanford University, U.S.A.
	9:30-10:20	**China-Presenter** : Wei Xin Deputy Dir., Higher Education Institute, Beijing University
	10:20-11:10	**Germany-Presenter**: Wilfried Hartmann Vice-President University of Hamburg
	11:10-12:00	**Discussion**
	12:00-13:00	**Lunch Break**
Afternoon	13:00-18:00	**Present Situation and Perspectives of Academic Reforms (Session III)**
		Chair: Kazuo Kurimoto Prof. Research Institute for Higher Education, Hiroshima University, Japan
		Robert Zemsky Dir., Institute for Research on Higher Education, University of Pennsylvania, U.S.A.
	13:00-14:45	**Discussion Session I**
		Topic: Present Situation of Academic Reforms
	14:45-15:15	**Tea/Coffee Break**
	15:15-17:00	**Discussion Session II**

Topic: Perspective of Academic Reforms

17:00-17:45 **Summary Report**:
Ulrich Teichler
Professor, University of Kassel
Germany

17:45-18:00 **Chair**: Keith J. Morgan
Visiting Prof., Research Institute for Higher Education, Hiroshima University, Japan

Atsunori Yamanoi
Prof., Research Institute for Higher Education, Hiroshima University, Japan

Closing Address:
John Yip
Former Dir. of Education, Ministry of Education, Singapore

Akira Arimoto
Dir., Research Institute for Higher Education, Hiroshima University, Japan

18:30-19:30 **Business Meeting** (Directors of Six-Nation Project)

2/8(Sat) **Departure from Hiroshima**

LIST OF PARTICIPANTS

OVERSEAS PARTICIPANTS

Invited Experts

Ms. Cheng Y. Davis

Director
International Programs Office,
Graduate School of Education
University of Pennsylvania
U.S.A.

Mr. Saravanan Gopinathan

Dean
School of Education,
National Institute of Education
Nanyang Technological University
SINGAPORE

Mr. François Grin

Assistant Professor
Department of Political Economy,
University of Geneva
SWITZERLAND

Ms. Patricia J.Gumport

Professor
School of Education
Stanford University
U.S.A.

Mr. Wilfried Hartmann

Vice-President
University of Hamburg
GERMANY

Mr. Zhang Li

Deputy Director-General
National Centre for Education Development
and Research
State Education Commission of P.R.C.
CHINA

Mr. Christoph Metzger

Professor
Insitute for Teaching of Economics and
Business Administration,
University of St. Gallen
SWITZERLAND

Mr. Ulrich Teichler

Professor
University of Kassel
GERMANY

Mr. Wei Xin

Deputy Director
Institute of Higher Education
Beijing University
CHINA

Mr. John Yip

Adjunct Professor of Education
Nanyang Technological University
National Institute of Education
SINGAPORE

Mr. Robert Zemsky

Professor and Director
Institute for Research on
Higher Education
University of Pennsylvania
U.S.A.

Guest Speaker

Mr. Jean-Etienne Berset

Government Inspector
Federal Office for Industry and Labour
SWITZERLAND

JAPANESE PARTICIPANTS

Invited Experts

Mr. Akirou Beppu

Professor
School of Literature
Meiji University

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Director
International Affairs Division,
Ministry of Education, Science and Culture

Mr. Yoshinaga Ishibashi

Professor
International Relations
Kyoritsu Women's University

Mr. Motohisa Kaneko

Professor and Director
Center for Research and Development of
Higher Education
University of Tokyo

Mr. Shinichi Yamamoto

Professor and Director
Research Center for University Studies
University of Tsukuba

Mr. Yoshihito Yasuhara	Associate Professor Faculty of Education Hiroshima University

Hiroshima University

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